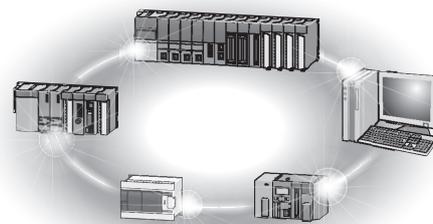


Mitsubishi Programmable Controller

CC-Link IE Field Network Ethernet Adapter Module User's Manual

-NZ2GF-ETB



● SAFETY PRECAUTIONS ●

(Read these precautions before using this product.)

Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly.

In this manual, the safety precautions are classified into two levels: "⚠ WARNING" and "⚠ CAUTION".



Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.



Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Under some circumstances, failure to observe the precautions given under "⚠ CAUTION" may lead to serious consequences.

Observe the precautions of both levels because they are important for personal and system safety. Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

[Design Precautions]

⚠ WARNING

- Configure safety circuits external to the Ethernet adapter module to ensure that the entire system operates safely even when a fault occurs in the external power supply or the Ethernet adapter module. Failure to do so may result in an accident due to an incorrect output or malfunction. The Ethernet adapter module will stop its operation if it detects an error such as a watchdog timer error by the self-diagnostic function.
- When changing data from a peripheral device connected to the Ethernet adapter module during operation, configure an interlock circuit in the program of another station to ensure that the entire system will always operate safely. For other controls to a running programmable controller on another station (such as program modification or operating status change) or the operating status change of the Ethernet adapter module, read relevant manuals carefully and ensure the safety before the operation. Especially, in the case of a control from an external device to a remote programmable controller on another station, immediate action cannot be taken for a problem on the programmable controller due to a communication failure. To prevent this, configure an interlock circuit on the program on another station, and determine corrective actions to be taken between the external device and the programmable controller in case of a communication failure.
- Do not write any data to the "system area" and "write-protect area" (R) of the buffer memory in the Ethernet adapter module. Doing so may cause malfunction of the Ethernet adapter module.

[Design Precautions]

CAUTION

- Do not install the communication cables together with the main circuit lines or power cables. Keep a distance of 100mm or more between them. Failure to do so may result in malfunction due to noise.

[Installation Precautions]

CAUTION

- Use the Ethernet adapter module in an environment that meets the general specifications in this manual. Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.
- Do not directly touch any conductive parts and electric components of the Ethernet adapter module. Doing so can cause malfunction or failure of the Ethernet adapter module.

[Wiring Precautions]

WARNING

- Shut off the external power supply (all phases) used in the system before wiring. Failure to do so may result in electric shock or cause the Ethernet adapter module to fail or malfunction.
- After wiring, attach the included terminal cover to the module before turning it on for operation. Failure to do so may result in electric shock.

[Wiring Precautions]

CAUTION

- Individually ground the FG and LG terminals of the programmable controller with a ground resistance of 100Ω or less. Failure to do so may result in electric shock or malfunction.
- Use applicable solderless terminals and tighten them within the specified torque range. If any spade solderless terminal is used, it may be disconnected when a terminal block screw comes loose, resulting in failure.
- Check the rated voltage and terminal layout before wiring to the Ethernet adapter module, and connect the cables correctly. Connecting a power supply with a different voltage rating or incorrect wiring may cause a fire or failure.
- Securely connect the connector to the Ethernet adapter module.
- Do not install the communication cables together with the main circuit lines or power cables. Failure to do so may result in malfunction due to noise.
- Place the cables connected to the Ethernet adapter module in a duct or clamp them. If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the Ethernet adapter module or cables or malfunction due to poor contact.

[Wiring Precautions]

CAUTION

- Tighten the terminal block screw within the specified torque range. Undertightening can cause short circuit, fire or malfunction. Overtightening can damage the screw and/or Ethernet adapter module, resulting in drop, short circuit, or malfunction.
- When disconnecting the cable from the Ethernet adapter module, do not pull the cable by the cable part. For the cable with connector, hold the connector part of the cable. Pulling the cable connected to the Ethernet adapter module may result in malfunction or damage to the module or cable.
- Prevent foreign matter such as dust or wire chips from entering the Ethernet adapter module. Such foreign matter can cause a fire, failure, or malfunction.
- A protective film is attached to the top of the Ethernet adapter module to prevent foreign matter, such as wire chips, from entering the module during wiring. Do not remove the film during wiring. Remove it for heat dissipation before system operation.
- The Ethernet adapter module must be installed in a control panel. Connect the main power supply through a relay terminal block. Wiring and replacement of the Ethernet adapter module must be performed by qualified maintenance personnel with knowledge of protection against electric shock. For wiring methods, refer to "Wiring" in this manual.

[Startup and Maintenance Precautions]

WARNING

- Do not touch any terminal while power is on. Doing so will cause electric shock or malfunction.
- Shut off the external power supply for the system in all phases before cleaning the module or retightening the terminal block screw. Failure to do so may result in electric shock.

[Startup and Maintenance Precautions]

CAUTION

- Before performing online operations (especially, program modification, forced output, and operating status change) for the running Ethernet adapter module or programmable controller module on another station from the peripheral device connected, read relevant manuals carefully and ensure the safety. Improper operation may damage machines or cause accidents.
- Do not disassemble or modify the Ethernet adapter module. Doing so may cause failure, malfunction, injury, or a fire.
- Use any radio communication device such as a cellular phone or PHS (Personal Handy-phone System) more than 25cm away in all directions from the Ethernet adapter module. Failure to do so may cause malfunction.
- Tighten the terminal block screw within the specified torque range. Undertightening can cause drop of the component or wire, short circuit, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
- Before handling the Ethernet adapter module, touch a conducting object such as a grounded metal to discharge the static electricity from the human body. Failure to do so may cause the Ethernet adapter module to fail or malfunction.

[Disposal Precautions]

 **CAUTION**

- When disposing of this product, treat it as industrial waste.

● CONDITIONS OF USE FOR THE PRODUCT ●

- (1) Mitsubishi programmable controller ("the PRODUCT") shall be used in conditions;
- i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
 - ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.
- (2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.

MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.

("Prohibited Application")

Prohibited Applications include, but not limited to, the use of the PRODUCT in;

- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above, restrictions Mitsubishi may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by Mitsubishi and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTS are required. For details, please contact the Mitsubishi representative in your region.

INTRODUCTION

Thank you for purchasing the CC-Link IE Field Network Ethernet adapter module (hereinafter abbreviated as the Ethernet adapter module).

This manual describes the operating procedure, system configuration, parameter setting, functions, and troubleshooting of the Ethernet adapter module.

Before using this product, please read this manual and the relevant manuals carefully and develop familiarity with the functions and performance of the Ethernet adapter module to handle it correctly.

When applying the program examples introduced in this manual to the actual system, ensure the applicability and confirm that it will not cause system control problems.

Please make sure that the end users read this manual.

RELEVANT MANUALS

(1) CC-Link IE Field Network related manual

When using CC-Link IE Field Network for the first time, refer to the CC-Link IE Field Network Master/Local Module User's Manual. The following shows the system of CC-Link IE Field Network manuals.

Manual name <manual number, model code>	Description
MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual <SH-080917ENG, 13JZ47>	Overview of CC-Link IE Field Network, and specifications, procedures before operation, system configuration, installation, wiring, settings, functions, programming, and troubleshooting of the MELSEC-Q series master/local module
MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual <SH-080972ENG, 13JZ54>	Overview of CC-Link IE Field Network, and specifications, procedures before operation, system configuration, installation, wiring, settings, functions, programming, and troubleshooting of the MELSEC-L series master/local module
MELSEC-QS CC-Link IE Field Network Master/Local Module User's Manual <SH-080969ENG, 13JZ53>	Overview of CC-Link IE Field Network, and specifications, procedures before operation, system configuration, installation, wiring, settings, functions, programming, and troubleshooting of the MELSEC-QS series master/local module
CC-Link IE Field Network Interface Board User's Manual (For SW1DNC-CCIEF-B) <SH-080980ENG, 13JZ58>	Specifications, procedures before operation, system configuration, settings, functions, programming, and troubleshooting of the CC-Link IE Field Network interface board

(2) Ethernet related manual

For communications using SLMP, refer to the following manual.

Manual name <manual number, model code>	Description
SLMP Reference Manual <SH-080956ENG, 13JV23>	The protocol (SLMP) used for data reading or writing from an external device to the Ethernet adapter module

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MANUAL PAGE ORGANIZATION

In this manual, pages are organized and symbols are used as shown below.

The following page illustration is for explanation purpose only, and is different from the actual pages.

Annotations on the left side of the diagram:

- "" is used for screen names and items.
- 1. shows operating procedures.
- ☞ shows mouse operations.*1
- [] is used for items in the menu bar and the project window.
- Ex. shows setting or operating examples.
- 📖 shows reference manuals.
- 📄 shows reference pages.

Annotations on the right side of the diagram:

- The chapter of the current page is shown.
- The section of the current page is shown.
- Point shows notes that requires attention.
- Remark shows useful information.

Diagram content includes:

- Chapter title: CHAPTER 7 VARIOUS SETTINGS
- Section title: 7.1.1 Setting method
- Sub-section: (1) Setting parameters
- Operating procedure: (a) Operating procedure
- Step 1: Open the "PLC Parameter" dialog box. (Action: Project window->[Parameter]->[PLC parameter])
- Step 2: Select the "IO Assignment" tab.
- Screenshot of the "PLC Parameter" dialog box showing the "IO Assignment" tab.
- Table with columns: Item, Description, Reference.
- Example (Ex.): Setting "Start X/Y" enables modification on the start I/O numbers assigned to connected modules. When "1000" is specified in "Start X/Y" to the slot where a 16-point module is connected, the assignment range of an input module is changed to X1000 to X100F.
- Reference (📖): MELSEC-L CPU Module User's Manual (Function Explanation, Program Fundamentals)
- Point (Point): Set the type of the connected module in "Type". Setting a different type results in "SPUNIT LAY ERR". For the intelligent function module, the I/O points must also be the same in addition to the I/O assignment setting. (Reference: Page 30, Section 4.2.2)
- Remark (Remark): When an intelligent module is connected, I/O assignment can be omitted by selecting connected modules from "Intelligent Function Module" in the Project window.
- Page number: 73

*1 The mouse operation example is provided below.

Annotations on the left side of the screenshot:

- Menu bar: [Ex.] ☞ [Online] ☞ [Write to PLC...]
Select [Online] on the menu bar, and then select [Write to PLC...].
- A window selected in the view selection area is displayed. [Ex.] ☞ Project window ☞ [Parameter] ☞ [PLC Parameter]
Select [Project] from the view selection area to open the Project window. In the Project window, expand [Parameter] and select [PLC Parameter].
- View selection area

The screenshot shows the MELSOFT Series GX Works2 interface with the following elements:

- Menu bar: Project, Edit, Find/Replace, Compile, View, Online, Debug, Diagnostics
- Navigation pane: Project, Parameter, Intelligent Function Module, Global Device Comment, Program Setting, POU, Program, MAIN, Local Device Comment, Device Memory, Device Initial Value
- View selection area: Project, User Library, Connection Destination
- Main workspace: Ladder logic diagram showing a normally open contact labeled '0'.
- Status bar: Unlabeled

TERMS

Unless otherwise specified, this manual uses the following terms.

Term	Description
CC-Link IE Field Network	A high-speed and large-capacity open field network that is based on Ethernet (1000BASE-T)
Master/local module	A generic term for the CC-Link IE Field Network master/local modules: QJ71GF11-T2, QS0J71GF11-T2, and LJ71GF11-T2
Ethernet adapter module	The abbreviation for the NZ2GF-ETB CC-Link IE Field Network Ethernet adapter module.
Network module	A generic term for the following modules: <ul style="list-style-type: none"> • Module on CC-Link IE Field Network • CC-Link IE Controller Network module • Ethernet interface module • MELSECNET/H module • MELSECNET/10 module
External device	A generic term for devices that send SLMP request messages to an Ethernet adapter module
Configuration tool	A software package built in an Ethernet adapter module
GX Works2	The product name of the software package for the MELSEC programmable controllers
Master station	A station that controls the entire network. This station can perform cyclic transmission and transient transmission with all stations. Only one master station can be used in a network.
Local station	A station that performs cyclic transmission and transient transmission with the master station and other local stations. The station is controlled by programs in the CPU module or other equivalent modules on the station.
Remote I/O station	A station that exchanges I/O signals (bit data) with the master station by cyclic transmission
Remote device station	A station that exchanges I/O signals (bit data) and I/O data (word data) with the master station by cyclic transmission. This station responds to a transient transmission request from another station.
Intelligent device station	A station that exchanges I/O signals (bit data) and I/O data (word data) with the master station by cyclic transmission. This station responds to a transient transmission request from another station and also issues a transient transmission request to another station.
Slave station	A generic term for stations other than a master station: local station, remote I/O station, remote device station, and intelligent device station
Reserved station	A station reserved for future use. This station is not actually connected, but counted as a connected station.
Relay station	A station that includes two or more network modules. Data are passed through this station to stations on other networks
Cyclic transmission	A function by which data are periodically exchanged among stations on the same network using link devices (RX, RY, RWw, and RWr)
Transient transmission	A function of communication with another station, which is used when requested by a dedicated instruction or GX Works2
Data link	A generic term for cyclic transmission and transient transmission
Routing	A process of selecting paths for communication with other networks. CC-Link IE Field Network requires communication paths to be preset using routing parameters to communicate with stations on different networks. An Ethernet adapter module does not require routing parameters. Communications with other networks are performed according to the routing parameters set to the master station.
SLMP	The abbreviation for Seamless Message Protocol. This protocol is used to access an SLMP-compatible device or a programmable controller connected to an SLMP-compatible device from an external device.
Request message	An SLMP message sent from an external device to an Ethernet adapter module
Response message	An SLMP message sent from an Ethernet adapter module to an external device
Dedicated instruction	An instruction that simplifies programming for using functions of intelligent function modules
Return	A process of restarting data link when a station recovers from an error
Disconnection	A process of stopping data link if a data link error occurs
Device	A device (X, Y, W, or others) in an Ethernet adapter module
Link device	A device (RX, RY, RWr, or RWw) in a module on CC-Link IE Field Network

Term	Description
Remote input (RX)	Bit data input from a slave station to the master station (For some areas in a local station, data are input in the opposite direction.)  User's manual for the master/local module used
Remote output (RY)	Bit data output from the master station to a slave station (For some areas in a local station, data are output in the opposite direction.)  User's manual for the master/local module used
Remote register (RWr)	Word data input from a slave station to the master station (For some areas in a local station, data are input in the opposite direction.)  User's manual for the master/local module used
Remote register (RWw)	Word data output from the master station to a slave station (For some areas in a local station, data are output in the opposite direction.)  User's manual for the master/local module used
SB (link special relay)	Bit data that indicates the operating status and data link status of a module on CC-Link IE Field Network
SW (link special register)	Word data that indicates the operating status and data link status of a module on CC-Link IE Field Network
Parameter memory	A flash ROM in an Ethernet adapter module, where the parameters of the Ethernet adapter module are stored
Buffer memory	A memory in an Ethernet adapter module, where data (such as Ethernet port information, setting values, and monitoring values) are stored
RIRD	The abbreviation for JP.RIRD and GP.RIRD. This dedicated instruction is used in programs of the master/local module.
RIWT	The abbreviation for JP.RIWT and GP.RIWT. This dedicated instruction is used in programs of the master/local module.

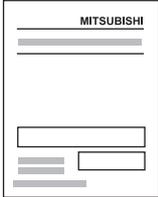
PACKING LIST

The following items are included in the package of this product. Before use, check that all the items are included.

NZ2GF-ETB



Ethernet adapter module



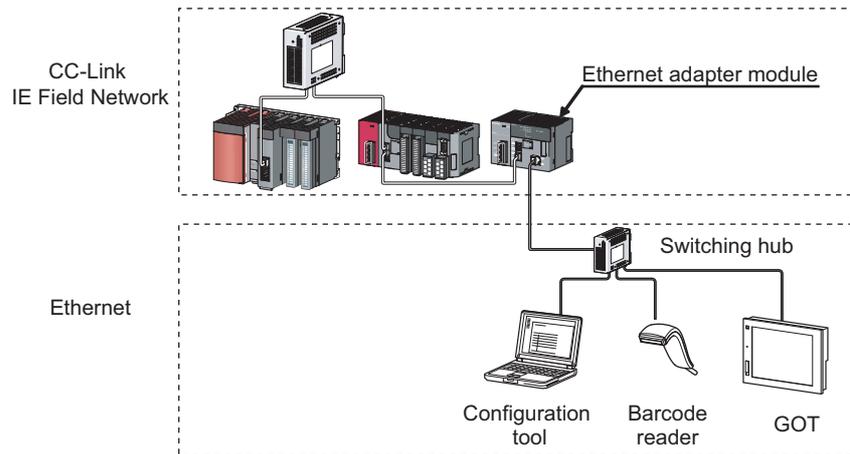
Safety Guidelines (IB-0800463)

CHAPTER 1 ETHERNET ADAPTER MODULE

The Ethernet adapter module connects external devices on the Ethernet network to CC-Link IE Field Network.

For details on CC-Link IE Field Network, refer to the following.

 User's manual for the master/local module used

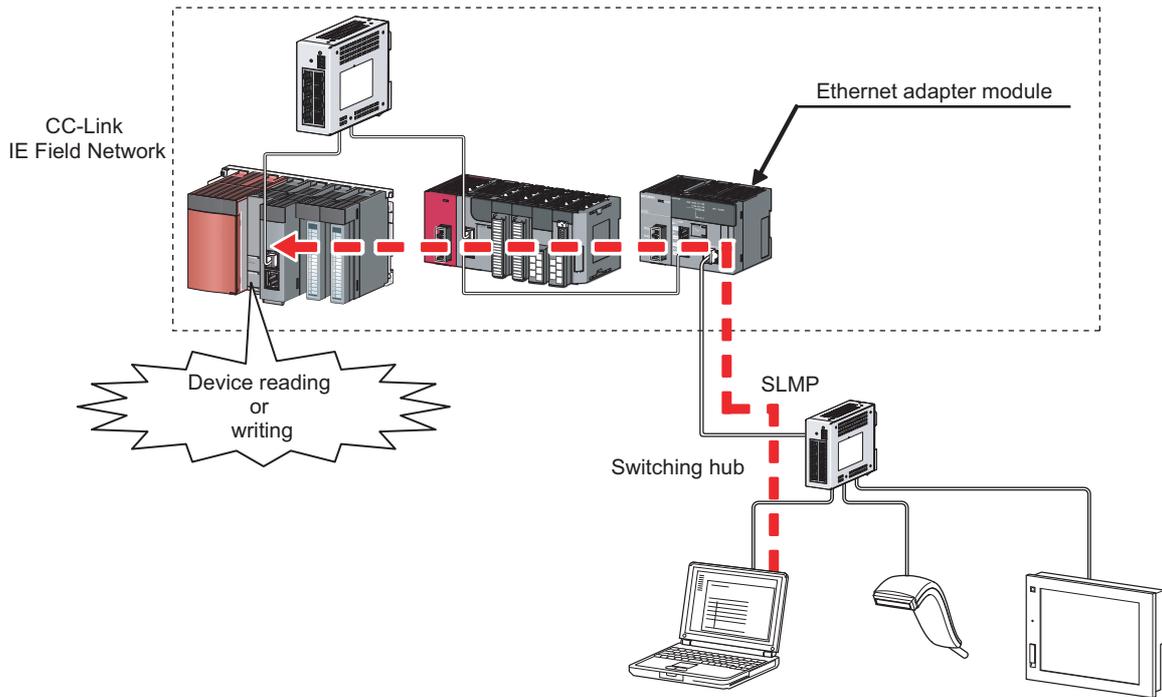


(1) Communication using SLMP

(a) Data of the programmable controller device can be read/written

Device data can be read or written from an external device to a module on the network where the Ethernet adapter module is connected. Data reading and writing is also available to the devices of the Ethernet adapter module. For details on SLMP, refer to the following.

 SLMP Reference Manual



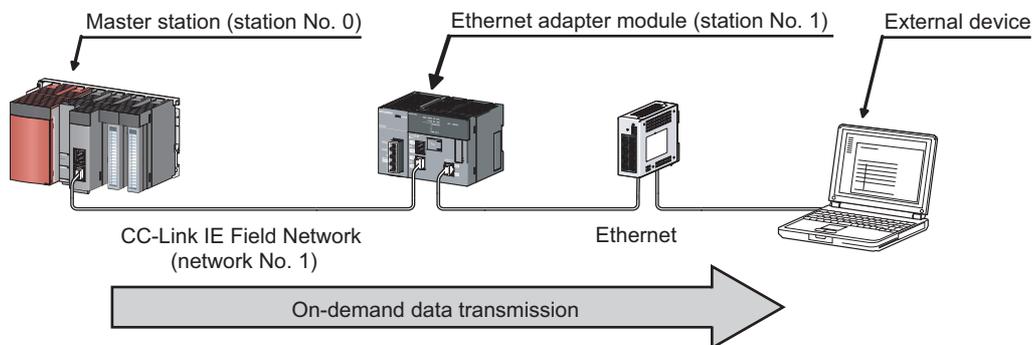
(b) The on-demand function enables data to be sent from the programmable controller

 [Page 89, Section 7.2](#)

Issuing a send request from the CPU module to the Ethernet adapter module allows data to be sent to the external device.

Events such as link start instruction and read instruction can be notified to an external device.

In addition, data can be simultaneously sent to all the external devices on Ethernet where the Ethernet adapter module is also connected (broadcast communications).

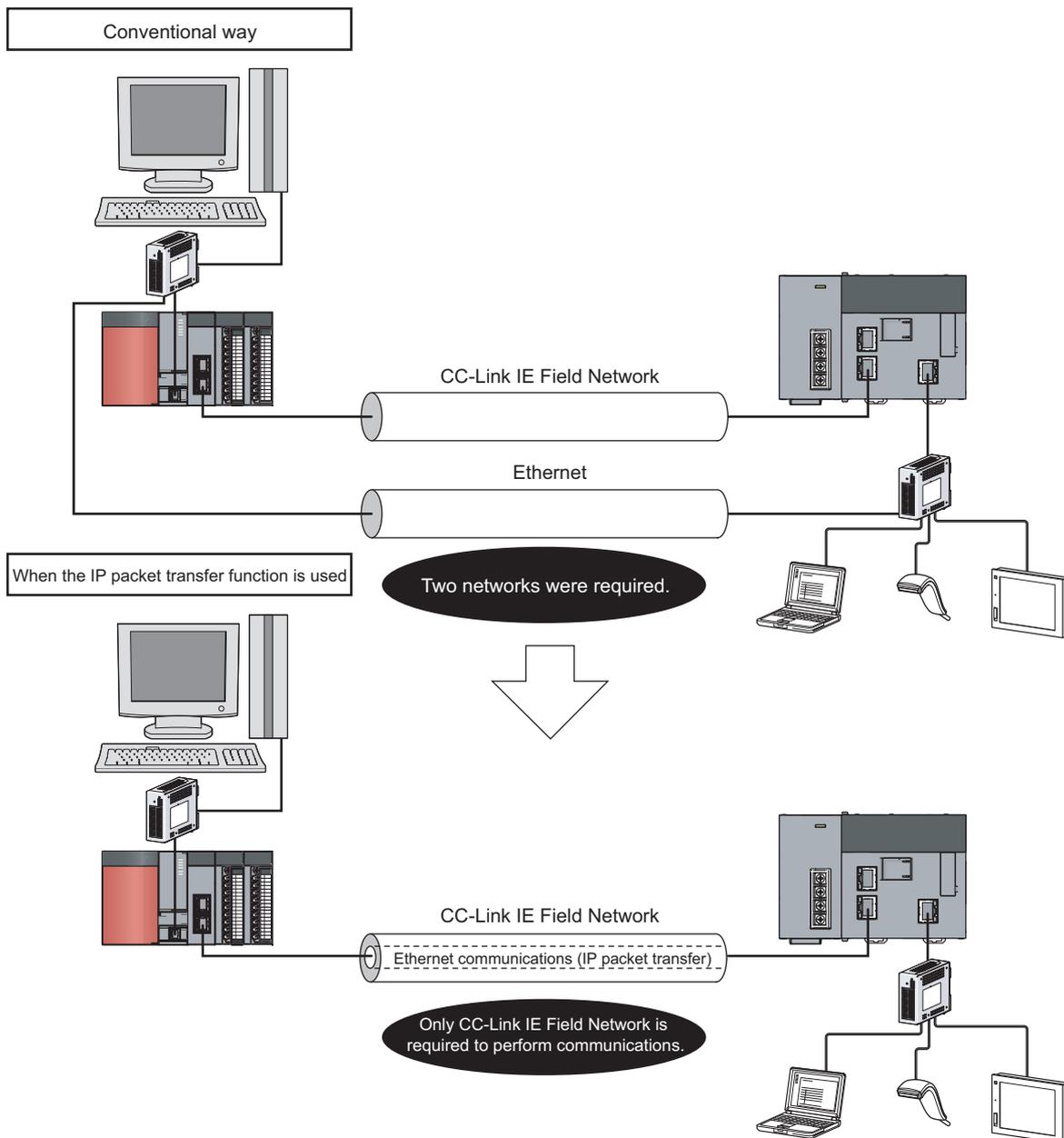


(2) Connection of MC protocol devices

The message format of SLMP is the same as that of the QnA compatible 3E or 4E frame format of the MC protocol. Therefore, external devices that support the MC protocol can be connected to CC-Link IE Field Network.

(3) Communications using the specified IP address over CC-Link IE Field Network (IP packet transfer function) (👉 Page 105, Section 7.3)

With this function, communications using the specified IP address can be performed over CC-Link IE Field Network. For example, a personal computer can communicate with the FTP server. Two networks of CC-Link IE Field Network and Ethernet are not required, resulting in reduced wiring cost.

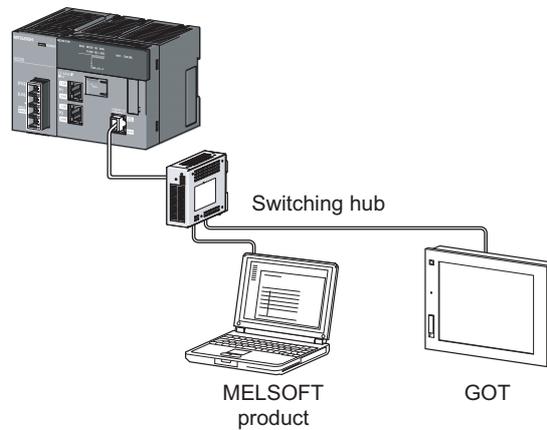


Point

The IP packet transfer function allows an IP packet to be transferred from an external device to a request destination. An Ethernet adapter module cannot be used as a request source or a request destination.

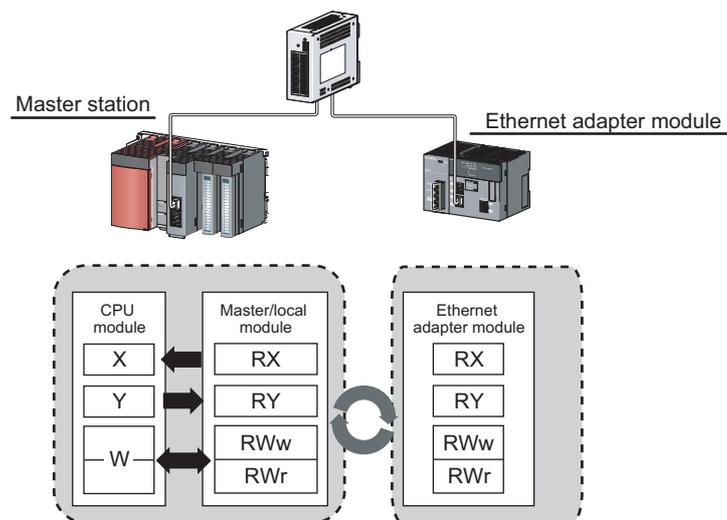
(4) Connection to MELSOFT products or GOTs

The Ethernet adapter module can be also connected to MELSOFT products or GOTs.



(5) Cyclic transmission (👉 Page 33, Section 3.2.1 (2))

Data can be periodically exchanged with the master station through link devices (RX, RY, RWr, and RWw).

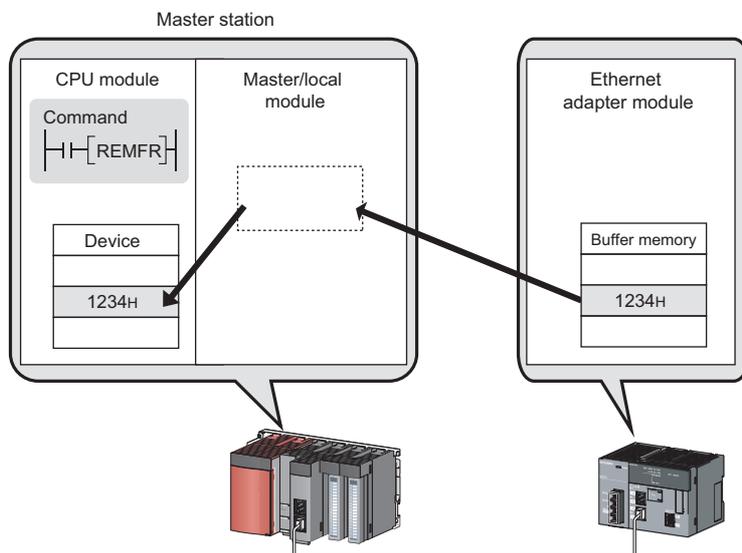


(6) Transient transmission

Transient transmission allows direct access from a master or local station to the devices or buffer memory of the Ethernet adapter module.

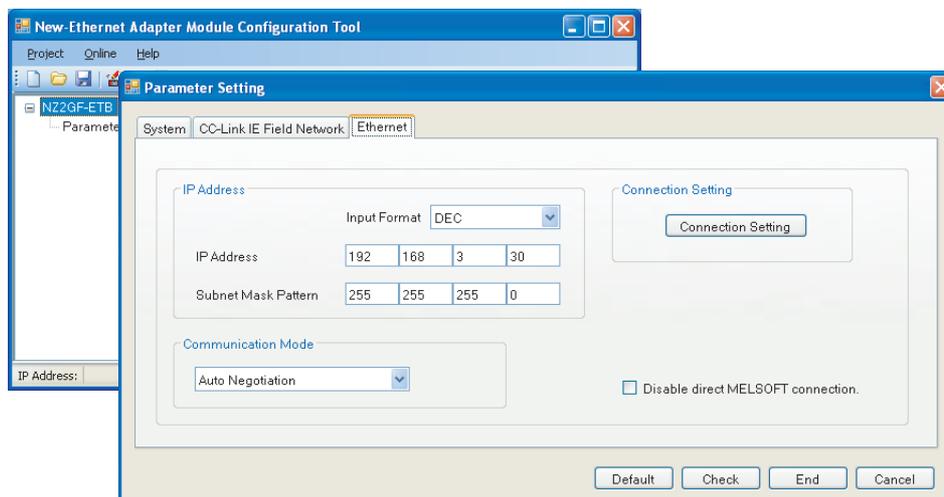
Requests from the master or local station to the Ethernet adapter module are made with dedicated instructions.

( User's manual for the master/local module used)



(7) Parameter setting (Page 184, Section 10.3)

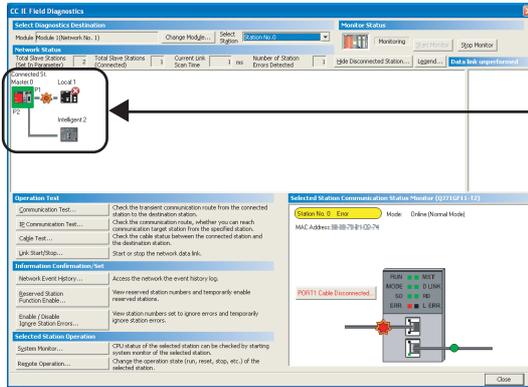
Parameters can be set in the configuration tool incorporated in the Ethernet adapter module. Therefore, there is no need to create any configuration programs. The configuration tool will be started from a Web browser.



(8) Diagnostics

(a) CC-Link IE Field Network diagnostics

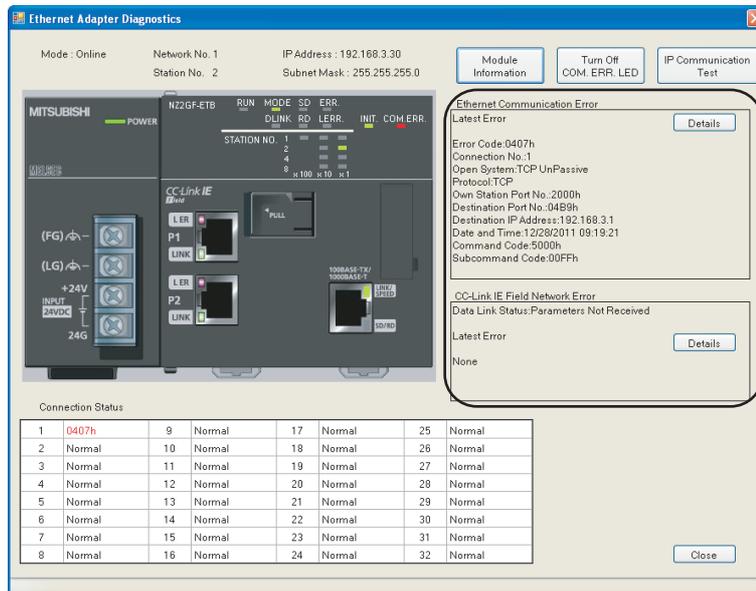
By connecting GX Works2 to a master/local module, the condition of the entire CC-Link IE Field Network can be viewed on the CC-Link IE Field Network diagnostics dialog box. ( User's manual for the master/local module used)



The status of the entire CC-Link IE Field Network can be monitored.

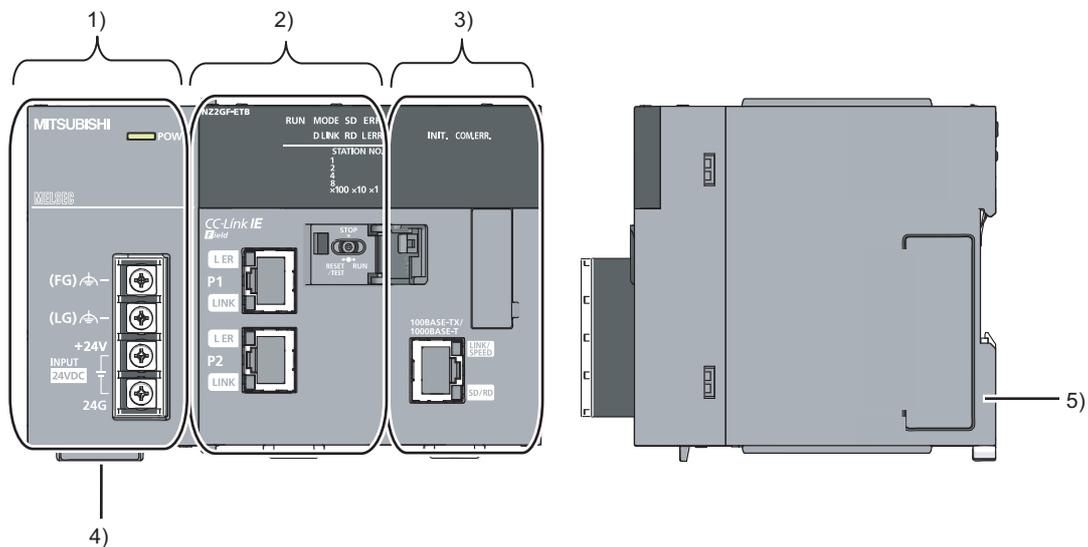
(b) Ethernet adapter diagnostics

In the Ethernet Adapter Diagnostics dialog box, the condition, such as an error occurred in communication with an external device, can be checked. ( Page 198, Section 10.7)



CHAPTER 2 PART NAMES

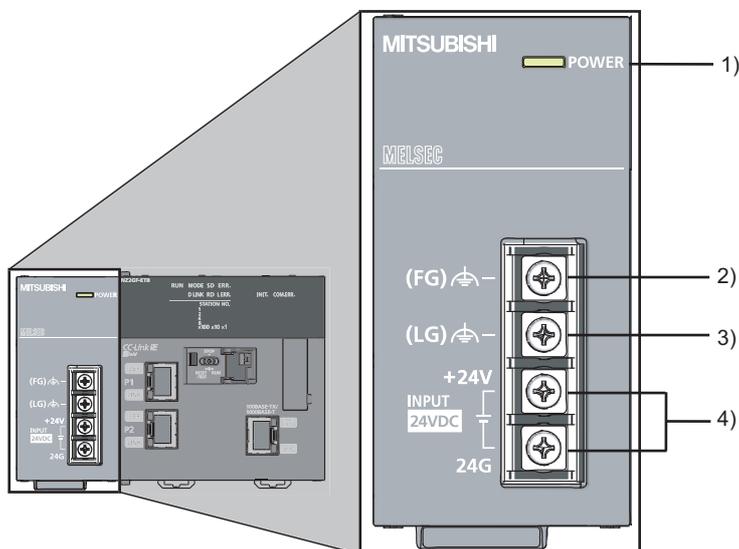
This chapter describes the Ethernet adapter module parts and their names.



No.	Name	Description
1)	Power supply part	Power is supplied to the Ethernet adapter module through this part. (24VDC) (☞ Page 23, Section 2.1)
2)	CC-Link IE Field Network part	The Ethernet adapter module is connected to CC-Link IE Field Network at this part. <ul style="list-style-type: none"> The communication status of CC-Link IE Field Network is indicated with the LEDs. (☞ Page 24, Section 2.2 (1)) The switch on this part is used for controlling the operation of the Ethernet adapter module. (☞ Page 26, Section 2.2 (2))
3)	Ethernet part	The Ethernet adapter module is connected to the Ethernet at this part. The communication status of the Ethernet is indicated with the LEDs. (☞ Page 28, Section 2.3)
4)	Serial number display	The serial number on the rating plate is indicated.
5)	DIN rail hook	This hook is used to mount the module to a DIN rail.

2.1 Power Supply Part

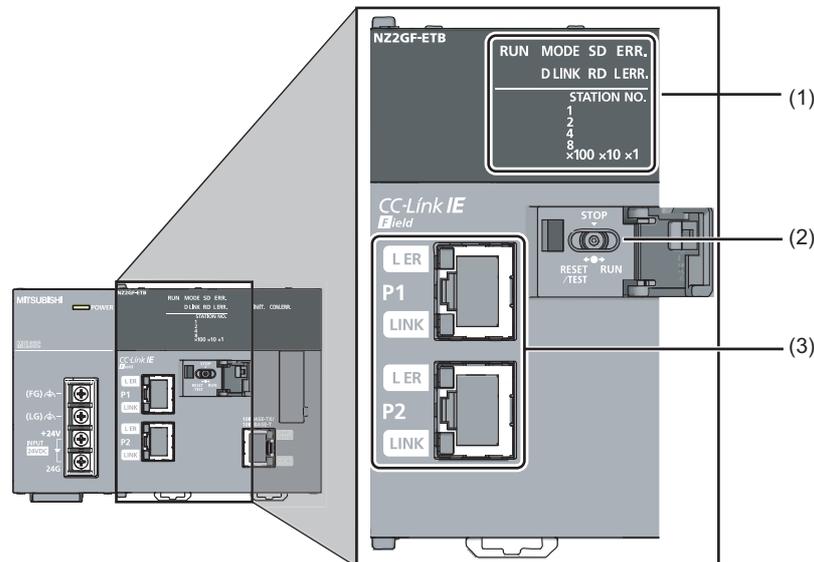
Respective names of the Ethernet adapter module's power supply part are shown below.



No.	Name	Part
1)	POWER LED	Indicates the operating status of the power supply part.
	On (green)	Normally operating.
	Off	No power input, power failure, or hardware failure
2)	FG terminal	A ground terminal connected to the shield pattern on the printed circuit board (M3.5 screw)
3)	LG terminal	A terminal grounded to a power filter (M3.5 screw)
4)	Power input terminal	Terminals for power input. (M3.5 screws) For the specifications of the power supply to be connected, refer to "Performance specifications of each part." (☞ Page 31, Section 3.2.1 (1))

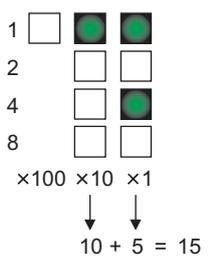
2.2 CC-Link IE Field Network Part

Respective names of the Ethernet adapter module's CC-Link IE Field Network part are shown below.



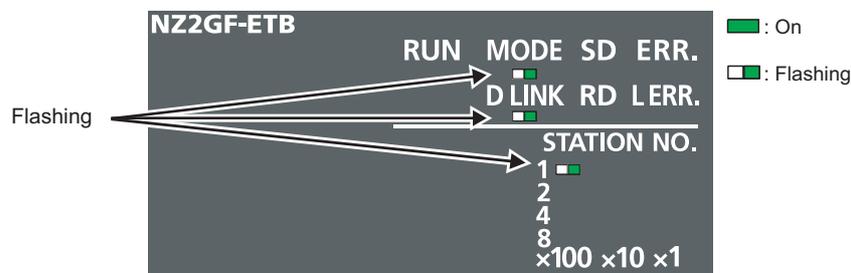
(1) LEDs

Name	Description
RUN LED	Indicates the operating status.
On	Normally operating. (RUN status)
Flashing	<p>Normally operating. (STOP status)</p> <ul style="list-style-type: none"> The Ethernet adapter module's switch is set to STOP. (Data transfer among the Ethernet adapter module devices is stopped.) The master station is in the STOP status. (Data transfer among the Ethernet adapter module devices is continued.) A remote STOP request is being received. The Ethernet adapter module stopped due to an error (except a watchdog timer error).
Off	A hardware failure or a watchdog timer error has occurred.
MODE LED	Indicates the mode.
On	Online mode
Flashing	Test mode
Off	Offline mode
D LINK LED	Indicates the data link status of CC-Link IE Field Network.
On	Data link in operation (cyclic transmission in progress)
Flashing	Data link in operation (cyclic transmission stopped)
Off	Data link not in operation (disconnected) or the module is in offline mode.
SD LED	Indicates the data sending status on CC-Link IE Field Network.
On	Data being sent
Off	No data being sent
RD LED	Indicates the data receiving status on CC-Link IE Field Network.
On	Data being received
Off	No data being received

Name	Description
ERR. LED	Indicates the error status of the Ethernet adapter module. The error details can be checked by the CC-Link IE Field Network diagnostics. (☞ Page 141, Section 9.2.1)
	On One of the following errors occurred in the Ethernet adapter module. • Multiple modules with the same station number exist on CC-Link IE Field Network. • Network parameters for CC-Link IE Field Network is corrupted. Or, there is an error in the reserved station setting, the number of connected stations, or the network number setting. • There is an error in the network parameter settings for the Ethernet adapter module.
	Off Normally operating.
L ERR. LED	Indicates the error status of the received data and the line. When this LED is on, check the L ER LED for "P1" or "P2" to see on which port the error was detected. The error details can be checked by the CC-Link IE Field Network diagnostics. (☞ Page 141, Section 9.2.1) This LED automatically turns off when the module has received normal data and loopback is completed.
	On • The Ethernet adapter module has received abnormal data. • The Ethernet adapter module is performing loopback (only the Ethernet adapter module with a serial number (first five digits) of "12102" or later).
	Off • The Ethernet adapter module has received normal data. • The Ethernet adapter module does not perform loopback (only the Ethernet adapter module with a serial number (first five digits) of "12102" or later).
STATION NO.	Indicates the station number of the Ethernet adapter module.
On	Indicates the station number. Ex. Station No.15 
	Off The station number has not been set.

Remark

- LED indication during line test execution
While a line test is being performed from the master station, the following LEDs are flashing.
 - MODE LED
 - D LINK LED
 - ×100 LED

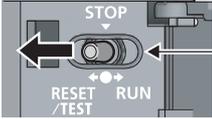
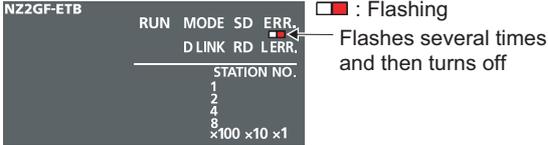
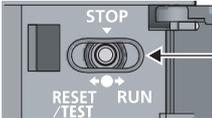


For execution of the line test, refer to the following.

 User's manual for the master/local module used

(2) Switch

With this switch, the operation of the Ethernet adapter module can be controlled.

Name	Description
RESET/TEST	<p>The Ethernet adapter module can be reset by the following method. Set the switch with your fingertip. Using a tool such as a screwdriver may damage the switch.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Switch</p> </div> <div style="text-align: center;"> <p>1. Shift the switch to RESET/TEST for one second or longer. Hold the switch and do not release it.</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>: Flashing Flashes several times and then turns off</p> </div> <div style="text-align: center;"> <p>2. Confirm that the ERR. LED flashes several times and then turns off.</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>Switch</p> </div> <div style="text-align: center;"> <p>3. Set the switch back to the STOP position. The switch will automatically return to the STOP position when released.</p> </div> </div> <p>You can also switch the Ethernet adapter module to the test mode and reset the parameters to default values. For switching to the test mode, refer to "Testing the Module Before Wiring." (Page 57, Section 6.3) For resetting the parameters to default values, refer to "Resetting Parameters to Factory Default Values." (Page 222, Appendix 6)</p>
STOP*1	<p>Transfer between the link devices (cyclic data from the master station) and the devices of the Ethernet adapter module is stopped. (Transfer is stopped while cyclic transmission with the master station is continued.) This transfer stop can prevent the data exchanged between an external device and the Ethernet adapter module from being sent to the master and local stations. The STOP switch is used for a purpose, such as debugging between the Ethernet adapter module and external devices.</p> <p>Ex. Debugging communication data with an external device using the STOP switch</p> <ol style="list-style-type: none"> (1) Set the switch to "STOP." (2) Data transfer between the link devices and devices of the Ethernet adapter module is stopped, and the Ethernet adapter module is separated from the master station control. (3) Check if communications are normally performed between the Ethernet adapter module and an external device. Because transfer is stopped, data exchanged between the Ethernet adapter module and the external device will not be sent to the master and local stations. (4) After checking the above, write the parameters to the Ethernet adapter module and start the system operation.
RUN	<p>Cyclic transmission starts between the Ethernet adapter module and the master station. (Data communication between the Ethernet adapter module and external devices is performed regardless of the switch status.)</p>

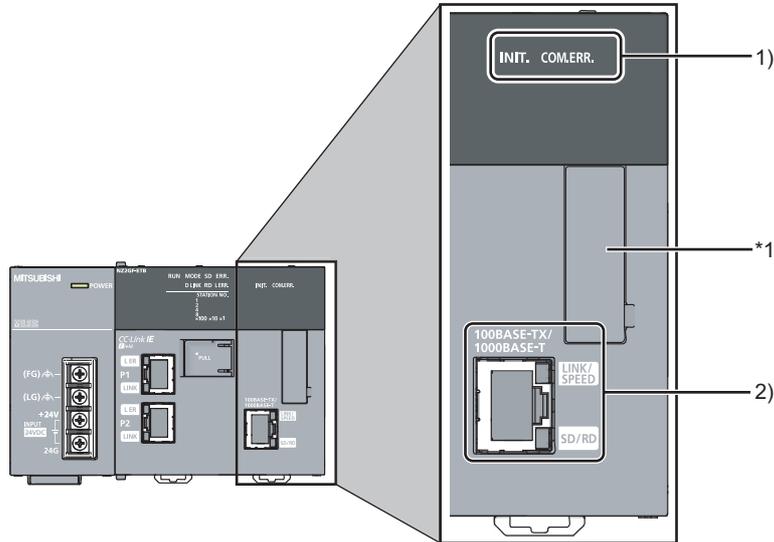
*1 Even if the switch is set to "STOP", the Ethernet adapter module is shown to be in the cyclic transmission status at the master station.

(3) Connectors

Name		Description
P1		The PORT1 connector for connecting to CC-Link IE Field Network. (RJ45 connector) Connect an Ethernet cable to this. (☞ Page 61, Section 6.4.2) There are no restrictions on the connection order of the cables for the "P1" and "P2" connectors.
L ER LED	On	<ul style="list-style-type: none"> The Ethernet adapter module has received abnormal data. The Ethernet adapter module is performing loopback (only the Ethernet adapter module with a serial number (first five digits) of "12102" or later).
	Off	<ul style="list-style-type: none"> The Ethernet adapter module has received normal data. The Ethernet adapter module does not perform loopback (only the Ethernet adapter module with a serial number (first five digits) of "12102" or later).
LINK LED	On	Linkup in progress
	Off	Linkdown in progress
P2		The PORT2 connector for connecting to CC-Link IE Field Network. (RJ45 connector) Connect an Ethernet cable to this. (☞ Page 61, Section 6.4.2) There are no restrictions on the connection order of the cables for the "P1" and "P2" connectors.
L ER LED		(Same as the "P1" connector)
LINK LED		

2.3 Ethernet Part

This section describes the names of the Ethernet adapter module's Ethernet part.



*1 Do not remove this sticker since it is used for maintenance.

No.	Name	Description	
1)	INIT. LED	Indicates the initial processing status.	
	On	Initial processing completed.	
	Off	Initial processing not completed.	
	COM.ERR. LED	Indicates the Ethernet communication status.	
	On	An error occurred in Ethernet communication.	
	Off	Normal Ethernet communication	
2)	Ethernet port		
	Connector for Ethernet connection. (RJ45 connector) Connects an Ethernet cable. (☞ Page 61, Section 6.4.2)		
	LINK/SPEED	On	<ul style="list-style-type: none"> • Green: Linkup in progress at 1Gbps • Orange: Linkup in progress at 100Mbps
		Off	Linkdown in progress
SD/RD	On	Data being sent or received in Ethernet communication	
	Off	No data transfer in Ethernet communication	

CHAPTER 3 SPECIFICATIONS

This chapter describes the specifications of the Ethernet adapter module.

3.1 General Specifications

Item	Specification					
Operating ambient temperature	0 to 55°C					
Storage ambient temperature	-25 to 75°C					
Operating ambient humidity	5 to 95%RH, non-condensing					
Storage ambient humidity						
Vibration resistance	Compliant with JIS B 3502 and IEC 61131-2	Under intermittent vibration	Frequency	Constant acceleration	Half amplitude	Sweep count
			5 to 8.4Hz	—	3.5mm	10 times each in X, Y, and Z directions
		Under continuous vibration	5 to 8.4Hz	—	1.75mm	
			8.4 to 150Hz	4.9m/s ²	—	
Shock resistance	Compliant with JIS B 3502 and IEC 61131-2 (147m/s ² , 3 times each in X, Y, and Z directions)					
Operating atmosphere	No corrosive gases					
Operating altitude ^{*1}	0 to 2000m					
Installation location	Inside a control panel					
Overvoltage category ^{*2}	II or lower					
Pollution degree ^{*3}	2 or lower					
Equipment class	Class I					

*1 Do not use or store the Ethernet adapter module under pressure equivalent to the atmospheric pressure of an elevation of 0m or higher. Doing so may cause malfunction. When applying pressure to the module, please consult your local Mitsubishi representative.

*2 This indicates the section of the power supply to which the equipment is assumed to be connected between the public power distribution network and the machinery within premises.
Category II applies to equipment for which electric power is supplied from fixed facilities. The surge voltage withstand level for up to the rated voltage of 300V is 2500V.

*3 This index indicates the degree to which conductive material is generated in terms of the environment in which the equipment is used.

At pollution level 2, only non-conductive pollution occurs. A temporary conductivity caused by condensing must be expected occasionally.

Point

For compliance with the EMC directive, refer to "EMC and Low Voltage Directives" in this manual.

(☞ Page 224, Appendix 8)

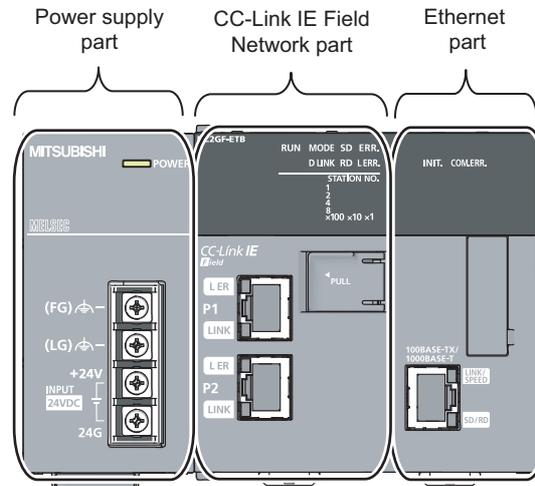
3.2 Performance Specifications

The following describes the performance specifications of the Ethernet adapter module.

Item		Specification
Number of device points	X	8192 points, 1KB (X0 to X1FFF are assigned to RX0 to RX1FFF.)
	Y	8192 points, 1KB (Y0 to Y1FFF are assigned to RY0 to RY1FFF.)
	W	8192 points, 16KB (1024 points of W0 to W3FF are assigned to RWw0 to RWw3FF. 1024 points of W1000 to W13FF are assigned to RWr0 to RWr3FF.)
	SB	8192 points, 1KB
	SW	8192 points, 16KB
	SM	2048 points, 256 bytes
	SD	2048 points, 4KB
Number of writes to the parameter memory		Up to 100000 times
Clock function (for display of data such as the date and time at which an error occurred)		Year, month, date, hour, minute, and second (with automatic leap year detection) When connected to a network, the clock is periodically synchronized with the clock in the CPU module on the master station via the network. (Initial value: 2000/1/1 00:00:00) If the Ethernet adapter module is powered off and then on, the clock will restart at the time the power was turned off. (The clock does not run while the power is off.) Therefore, the date and time of an error that occurred during initial processing may be different from the actual date and time.)
Internal current consumption (24VDC)		0.6A
External dimensions	H	90mm
	W	135mm
	D	109mm
Weight		0.7kg

3.2.1 Performance specifications of each part

The performance specifications of each part of the Ethernet adapter module are described below.



(1) Power supply part

Item	Specification
Input voltage (☞ Page 32, Section 3.2.1 (1) (a))	24VDC (-35% to +30%)
Current consumption	0.6A
Inrush current (☞ Page 32, Section 3.2.1 (1) (b))	100A, 1ms or less
Allowable momentary power failure time (☞ Page 32, Section 3.2.1 (1) (c))	10ms or less
Withstand voltage	510V AC/min (Altitude: 0 to 2,000m) Between inputs/LG and outputs/FG
Insulation resistance	10MΩ or higher by 500VDC insulation resistance tester (Between inputs/LG and outputs/FG, inputs and LG, outputs and FG)
Noise immunity	<ul style="list-style-type: none"> By noise simulator of 500Vp-p noise voltage, 1μs noise width, and 25 to 60 Hz noise frequency Noise voltage IEC 61000-4-4, 2kV
Operation status indicator	LEDs (Normal: On (green), Error: Off)
Fuse	Built-in (not replaceable)
Terminal screw size	M3.5
Applicable wire size	0.75 to 2 mm ²
Applicable solderless terminal	RAV1.25-3.5, RAV2-3.5, 0.8mm or less in thickness Two solderless terminals can be connected to one terminal.
Applicable tightening torque	0.66 to 0.89N•m

(a) Input voltage

Input voltage is a voltage at which the power supply part operates normally. If it is outside the specified range, the Ethernet adapter module may detect an error and stop its operation.

(b) Inrush current

Inrush current is a large current that instantaneously flows into a circuit immediately after power is applied.

Reapplying input power after power-off may cause an inrush current that exceeds the specified value. Allow 5 seconds or more before reapplying input power.

Also, select appropriate fuses or breakers for external circuits, considering the possibility of meltdown, sensing property, and other items shown in this section.

(c) Allowable momentary power failure time

If a momentary power failure occurs, the system detects an input voltage failure and stops its operation.

Allowable momentary power failure time is the period of time that the system can continue its operation after power is restored.

If a momentary stop exceeding the allowable momentary power failure time occurs, the operation will be continued by the load of the power supply part, or will be initially started. When the operation is continued, the operational behavior is the same as that for the momentary stop within the allowable momentary power failure time.

(2) CC-Link IE Field Network part

Item		Specification
Maximum link points per network	RWw	8192 points, 16KB
	RWr	8192 points, 16KB
	RX	16384 points, 2KB
	RY	16384 points, 2KB
Maximum link points per station	RWw	1024 points, 2KB
	RWr	1024 points, 2KB
	RX	2048 points, 256 bytes
	RY	2048 points, 256 bytes
Station type		Intelligent device station
Station No.		1 to 120
Network No.		1 to 239
Communication method		Token passing method
Communication speed		1Gbps
Transmission path		Line or star topology (Coexistence of line topology and star topology is possible.), ring topology
Connection cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher, (Double shielded/STP) Straight cable (☞ Page 48, Section 5.2.1)
Maximum station-to-station distance		Up to 100m (compliant with ANSI/TIA/EIA-568-B (Category 5e)) (☞ Page 65, Section 6.4.4 (7))
Overall cable distance		Line topology: 12000m (when connecting 1 master station and 120 slave stations) Star topology: Depends on the system configuration Ring topology: 12100m (when connecting 1 master station and 120 slave stations)
Number of cascade connections		Up to 20

(3) Ethernet part

Item		Specification
Number of connections	For users	32
	For auto-open	1
	For MELSOFT connection	3 (TCP connection: 1* ¹ , UDP connection: 1, Direct connection: 1)
Own Station Port No.		1025 to 4999, 5011 to 65534 (0401 _H to 1387 _H , 1393 _H to FFFE _H)
Number of simultaneously connectable modules		Up to 32
Communication speed		1Gbps or 100Mbps
Communication mode		Full- or Half-duplex
Transmission system		Base band
Connection cable	For 1Gbps	An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher, (Double shielded/STP) Straight cable ( Page 48, Section 5.2.2 (1))
	For 100Mbps* ²	An Ethernet cable that meets the 100BASE-TX standard: Category 5 or higher, (STP) Straight cable ( Page 48, Section 5.2.2 (1))
Maximum distance between switching hub and node		Up to 100m
Number of cascade connections		Up to 20

*1 To use two or more TCP connections for a MELSOFT Connection, user connections can be assigned to MELSOFT Connection. ( Page 191, Section 10.3.3 (1))

*2 Use of double shielded cables is recommended in a high noise environment.

Point

- When connected to a switching hub, the Ethernet adapter module detects and sets 1000BASE-T or 100BASE-TX and full-or half- duplex communication mode according to the switching hub. When the connected switching hub does not support the auto-negotiation function, set the switching hub to the half-duplex communication mode.
- The operation of the following connections is not guaranteed. Check the operation at the user's discretion before use.
 - Connections using the Internet (public line)
(Internet connection services by Internet service providers or telecommunications carriers)
 - Connections using firewall devices
 - Connections using broadband routers

(a) Communication specifications for TCP connection

- Number of resends and resend interval

If the Ethernet adapter module sent a message to an external device and after that did not receive an ACK from the external device, it will resend the message at the intervals shown below.

Item	Specification
Number of resends	Up to 3 times
Resend interval	Up to 64 seconds (Varies depending on the line status.) If the resend fails, the amount of time is doubled. (The maximum value is 64 seconds.) Ex. When the interval for the first resend is 20 seconds; 1st: 20s, 2nd: 40s, 3rd: 64s

If the Ethernet adapter module fails to receive an ACK response from the external device even when it resends data as many times as the number of resends, it regards that there is no external device, causing disconnection.

When the connection is disconnected, send a connection establishment request from the external device, reestablish a connection, and resend a request message.

- Alive check by KeepAlive

The Ethernet adapter module performs alive check by KeepAlive.

The Ethernet adapter module sends an alive check message in 5 seconds after receiving the last message from an external device. If no response is returned from the external device for 5 seconds, the module resends the alive check message. The module resends the message for 7 times at intervals of 5 seconds.

If no response is received for 45 seconds from the last message reception from the external device, the Ethernet adapter module will close the connection. Allow 45 seconds or longer before opening the same connection again.

When the external device does not support the TCP KeepAlive function, the connection may be closed.

- Connection establishment request

When a connection establishment request is sent from an external device to the port of the Ethernet adapter module, where a connection has been already established, the Ethernet adapter module will not respond. Therefore, if no response is returned even after a connection establishment request is sent to the Ethernet adapter module, check if the specified port number is correct.

3.3 List of the Functions

This section lists the functions of the Ethernet adapter module.

(1) Communications with an external device

Function		Description	Refer to
Communications using SLMP	Communications from an external device	Device data can be read or written from an external device to a module on the network where the Ethernet adapter module is connected. Data also can be read or written from/to the Ethernet adapter module.	Page 66, Section 7.1
	Communications from a CPU module (on-demand function)	Issuing a send request from the CPU module to the Ethernet adapter module allows data to be sent to the external device. Events such as link start instruction and read instruction can be notified to an external device. In addition, data can be simultaneously sent to all the external devices on Ethernet where the Ethernet adapter module is also connected (broadcast communications).	Page 89, Section 7.2
Communication using the specified IP address over CC-Link IE Field Network (IP packet transfer function)		With this function, communications using the specified IP address can be performed over CC-Link IE Field Network. For example, a personal computer connected to the Ethernet part can communicate with another personal computer connected to a Built-in Ethernet port QCPU. Two networks of CC-Link IE Field Network and Ethernet are not required, resulting in reduced wiring cost.	Page 105, Section 7.3
Connection to MELSOFT products or GOTs		The Ethernet adapter module can be also connected to MELSOFT products or GOTs.	—

(2) CC-Link IE Field Network communications

Function		Description	Refer to
Cyclic transmission		Data can be periodically exchanged with the master station through link devices (RX, RY, RWr, and RWw).	Page 66, Section 7.1
Transient transmission		The devices or buffer memory of the Ethernet adapter module can be directly accessed from the master or local station. Requests from the master or local station to the Ethernet adapter module are made with dedicated instructions.	—

(3) Other functions

Function		Description	Refer to
Device/buffer memory batch monitor		The values in the devices and buffer memory of the Ethernet adapter module can be monitored.	Page 196, Section 10.6
Ethernet adapter diagnostics		Information such as the latest error that occurred in the Ethernet adapter module and the status of the communications with an external device can be checked.	Page 198, Section 10.7

3.4 Buffer Memory List

The buffer memory is used for exchanging data between the Ethernet adapter module and a master/local module or an external device.

The contents of the buffer memory return to the default state (initial values) when the system is powered off or reset.

Address (Decimal (Hexadecimal))	Name	Initial value	Read/Write	Refer to	
0 (0 _H)	Module operation area	Module LED information	0	Read	Page 201, Appendix 1.1 (1)
1 (1 _H)		Station No. LED information	0	Read	Page 201, Appendix 1.1 (2)
2 (2 _H)		Ethernet port LED information			Page 201, Appendix 1.1 (3)
3 to 15 (3 _H to F _H)	System area			—	
16 to 18 (10 _H to 12 _H)	Own station information (PORT1 and PORT2)	Own station MAC address	—	Read	Page 202, Appendix 1.2 (1)
19 (13 _H)		System area			—
20 to 21 (14 _H to 15 _H)		Own station IP address	0	Read	Page 202, Appendix 1.2 (1)
22 to 25 (16 _H to 19 _H)	System area			—	
26 to 28 (1A _H to 1C _H)	Own station information (Ethernet port)	Own station MAC address	—	Read	Page 202, Appendix 1.2 (2)
29 (1D _H)		System area			—
30 to 31 (1E _H to 1F _H)		Own station IP address	0	Read	Page 202, Appendix 1.2 (2)
32 to 33 (20 _H to 21 _H)		Own station subnet mask	0		
34 to 35 (22 _H to 23 _H)	System area			—	
36 (24 _H)	Own station information (Parameters)	Mode	0	Read	Page 202, Appendix 1.2 (3)
37 (25 _H)		Network No.	0	Read	
38 (26 _H)		Station No.	0	Read	
39 to 47 (27 _H to 2F _H)		System area			—
48 (30 _H)		Function check area*1	0001 _H	Read	Page 202, Appendix 1.2 (3)
49 to 767 (31 _H to 2FF _H)	System area			—	
768 (300 _H)	Ethernet port operation area (area for initial processing)	Initial processing error code	0	Read	Page 203, Appendix 1.3 (1)

Address (Decimal (Hexadecimal))	Name	Initial value	Read/Write	Refer to	
769 to 783 (301 _H to 30F _H)	System area			—	
784 (310 _H)	Ethernet port operation area (Connection information area No.1)	Open system	1	Read	Page 203, Appendix 1.3 (2)
785 (311 _H)		Protocol	0		
786 (312 _H)		Communication data code	1		
787 (313 _H)		Own Station Port No.	0		
788 (314 _H)		TCP connection system	0	Read	Page 203, Appendix 1.3 (2)
789 (315 _H)		Connection status	0		
790 to 791 (316 _H to 317 _H)		System area	—	—	—
792 (318 _H)		Latest error code	0	Read	Page 203, Appendix 1.3 (2)
793 (319 _H)		Destination port No.	0	Read	
794 to 795 (31A _H to 31B _H)		Destination IP address	0	Read	
796 to 799 (31C _H to 31F _H)		System area	—	—	
800 to 1295 (320 _H to 50F _H)		Ethernet port operation area (Connection information area No.2 to No.32)	Same as Connection information area No.1		Page 204, Appendix 1.3 (3)
1296 (510 _H)	Ethernet port operation area (Auto-open UDP port area)	Open system	3	Read	Page 204, Appendix 1.3 (4)
1297 (511 _H)		Protocol	1		
1298 (512 _H)		Communication data code	0		
1299 (513 _H)		Own Station Port No.	1388 _H		
1300 (514 _H)		System area	—	—	—
1301 (515 _H)		Connection status	0	Read	Page 204, Appendix 1.3 (4)
1302 to 1303 (516 _H to 517 _H)		System area	—	—	—
1304 (518 _H)		Latest error code	0	Read	Page 204, Appendix 1.3 (4)
1305 (519 _H)		Destination port No.	0		
1306 to 1307 (51A _H to 51B _H)		Destination IP address	0		

Address (Decimal (Hexadecimal))	Name	Initial value	Read/Write	Refer to		
1308 to 1311 (51C _H to 51F _H)	System area			—		
1312 (520 _H)	System area			—		
1313 (521 _H)	Protocol	1	Read	Page 205, Appendix 1.3 (5)		
1314 (522 _H)	Communication data code	0				
1315 (523 _H)	Own Station Port No.	1389 _H				
1316 (524 _H)	System area			—		
1317 (525 _H)	Ethernet port operation area (MELSOFT application communication port (UDP/IP) area for the system)	Connection status	0	Read	Page 205, Appendix 1.3 (5)	
1318 to 1319 (526 _H to 527 _H)		System area			—	
1320 (528 _H)		Latest error code	0	Read	Page 205, Appendix 1.3 (5)	
1321 (529 _H)		Destination port No.	0			
1322 to 1323 (52A _H to 52B _H)		Destination IP address	0			
1324 to 1327 (52C _H to 52F _H)	System area			—		
1328 (530 _H)	Ethernet port operation area (MELSOFT application communication port (TCP/IP) area for the system)	Open system	0	Read	Page 206, Appendix 1.3 (6)	
1329 (531 _H)		Protocol	0			
1330 (532 _H)		Communication data code	0			
1331 (533 _H)		Own Station Port No.	138A _H	Read	Page 206, Appendix 1.3 (6)	
1332 (534 _H)		TCP connection system	0			
1333 (535 _H)		Connection status	0			
1334 to 1335 (536 _H to 537 _H)		System area			—	
1336 (538 _H)		Latest error code			Read	Page 206, Appendix 1.3 (6)
1337 (539 _H)		Destination port No.		0		
1338 to 1339 (53A _H to 53B _H)	Destination IP address		0			
1340 to 1343 (53C _H to 53F _H)	System area			—		

Address (Decimal (Hexadecimal))	Name	Initial value	Read/Write	Refer to		
1344 (540 _H)	Ethernet port operation area (Direct MELSOFT connection port)	Open system	3	Read	Page 207, Appendix 1.3 (7)	
1345 (541 _H)		Protocol	1			
1346 (542 _H)		Communication data code	0			
1347 (543 _H)		Own Station Port No.	1390 _H			
1348 (544 _H)		System area	—	—		—
1349 (545 _H)		Connection status	0	Read		Page 207, Appendix 1.3 (7)
1350 to 1351 (546 _H to 547 _H)		System area	—	—		—
1352 (548 _H)		Latest error code	0	Read		Page 207, Appendix 1.3 (7)
1353 (549 _H)		Destination port No.	0			
1354 to 1355 (54A _H to 54B _H)		Destination IP address	0			
1356 to 1359 (54C _H to 54F _H)	System area			—		
1360 (550 _H)	Ethernet port operation area (Connection port for the configuration tool)	Open system	3	Read	Page 208, Appendix 1.3 (8)	
1361 (551 _H)		Protocol	1			
1362 (552 _H)		Communication data code	0			
1363 (553 _H)		Own Station Port No.	1392 _H			
1364 (554 _H)		System area	—	—		—
1365 (555 _H)		Connection status	0	Read		Page 208, Appendix 1.3 (8)
1366 to 1367 (556 _H to 557 _H)		System area	—	—		—
1368 (558 _H)		Latest error code	0	Read		Page 208, Appendix 1.3 (8)
1369 (559 _H)		Destination port No.	0			
1370 to 1371 (55A _H to 55B _H)		Destination IP address	0			
1372 to 2048 (55C _H to 800 _H)	System area			—		

Address (Decimal (Hexadecimal))	Name		Initial value	Read/Write	Refer to	
2049 (801 _H)	Ethernet port error log area	Error count	0	Read	Page 209, Appendix 1.4 (1)	
2050 (802 _H)		Error log write pointer	0		Page 209, Appendix 1.4 (2)	
2051 to 2063 (803 _H to 80F _H)	System area				—	
2064 (810 _H)	Ethernet port error log area (Error log No.1)	Error code	0	Read	Page 209, Appendix 1.4 (3)	
2065 (811 _H)		Connection No.	0			
2066 (812 _H)		Open system	0			
2067 (813 _H)		Protocol	0			
2068 (814 _H)		Own Station Port No.	0			
2069 (815 _H)		Destination port No.	0			
2070 to 2071 (816 _H to 817 _H)		Destination IP address	0	Read	Page 209, Appendix 1.4 (3)	
2072 to 2075 (818 _H to 81B _H)		Date and time	0			
2076 (81C _H)		Command code	0			
2077 (81D _H)		Subcommand code	0			
2078 to 2079 (81E _H to 81F _H)		System area		—	—	—
2080 to 3087 (820 _H to C0F _H)		Ethernet port error log area (Error log No.2 to No.64)	Same as error log No.1			Page 210, Appendix 1.4 (4)
3088 to 3327 (C10 _H to CFF _H)	System area				—	
3328 (D00 _H)	Ethernet port line status	Communication status	0	Read	Page 210, Appendix 1.5 (1)	
3329 to 5375 (D01 _H to 14FF _H)	System area				—	
5376 to 5377 (1500 _H to 1501 _H)	Ethernet port connection status data area	Open completion signal	0	Read	Page 211, Appendix 1.6 (1)	
5378 to 5631 (1502 _H to 15FF _H)	System area				—	

Address (Decimal (Hexadecimal))	Name	Initial value	Read/Write	Refer to	
5632 (1600 _H)	On-demand function data sending area (channel 1)* ¹	Send request flag	0	Read/Write	Page 92, Section 7.2.5 (1)
5633 (1601 _H)		Send completed flag	0	Read	Page 92, Section 7.2.5 (2)
5634 (1602 _H)		Completion code	0	Read	Page 92, Section 7.2.5 (3)
5635 to 5643 (1603 _H to 160B _H)		Control data	0	Read/Write	Page 93, Section 7.2.5 (4)
5644 to 6603 (160C _H to 19CB _H)		Send data	0	Read/Write	
6604 to 6655 (19CC _H to 19FF _H)		System area	—	—	—
6656 to 9727 (1A00 _H to 25FF _H)	On-demand function data sending area (channels 2 to 4)* ¹	Same as channel 1			Page 92, Section 7.2.5
9728 to 29697 (2600 _H to 7401 _H)	System area				—

*1 Check the corresponding serial No. and software version. (☞ Page 233, Appendix 10)

Point

Do not write data to "System area".
Doing so may cause the Ethernet adapter module to malfunction.

3.5 SLMP

The Ethernet adapter module's devices can be read or written with command messages in the predefined format from an external device. For details on SLMP, refer to the following.

 SLMP Reference Manual

3.5.1 Available command list

The following table lists the commands that can be executed from an external device to the Ethernet adapter module. The □ part in the Subcommand column varies depending on the specified device. ( SLMP Reference Manual)

Type	Item		Subcommand	Description
	Operation	Command		
Device	Read	0401	00□1	Reads values in 1-point units from bit devices (consecutive device numbers).
			00□0	<ul style="list-style-type: none"> Reads values in 16-point units from bit devices (consecutive device numbers). Reads values in 1-word units from word devices (consecutive device numbers).
	Write	1401	00□1	Writes values to bit devices (consecutive device numbers) in 1-point units.
			00□0	<ul style="list-style-type: none"> Writes values to bit devices (consecutive device numbers) in 16-point units. Writes values to word devices (consecutive device numbers) in 1-word units.
	Read Random	0403	00□0	Specifies a device number to read the device value. Discrete device numbers can be used. <ul style="list-style-type: none"> Reads bit devices in 16- or 32-point units. Reads word devices in 1- or 2-word units.
	Write Random	1402	00□1	Writes values in 1-point units to bit devices by specifying the device numbers. Discrete device numbers can be used.
			00□0	<ul style="list-style-type: none"> Specifies a device number in 16- or 32-point units to write a value to a bit device. Discrete device numbers can be used for specification. Specifies a device number in word units to write a value to a word device. Discrete device numbers can be used for specification.
	Entry Monitor Device	0801	00□0	Registers a device to be read by Execute Monitor (command: 0802).
	Execute Monitor	0802	0000	Reads the value of the device registered by Entry Monitor Device (command: 0801).
	Read Block	0406	00□0	Specifies n points (1 point: 16 bits) of word or bit devices as one block, and reads multiple blocks of data. Discrete device numbers can be used for specification.
Write Block	1406	00□0	Specifies n points (1 point: 16 bits) of word or bit devices as one block, and writes multiple blocks of data. Discrete device numbers can be used. Discrete device numbers can be used for specification.	
Memory	Read	0613	0000	Reads buffer memory data of the Ethernet adapter module.
	Write	1613	0000	Writes data to the buffer memory of the Ethernet adapter module.
Remote Control	Remote Run	1001	0000	Executes remote RUN to the Ethernet adapter module.
	Remote Stop	1002	0000	Executes remote STOP to the Ethernet adapter module.
	Remote Reset	1006	0000	Executes remote RESET to the Ethernet adapter module.
	Read Type Name	0101	0000	Reads the model name and code of the Ethernet adapter module.
Clear Error	1617	0000	Turns off the COM.ERR. LED on the Ethernet adapter module.	
Ondemand	2101	0000	Issues a send request from the CPU module to the Ethernet adapter module and sends data to the external device.	

3.5.2 Ranges of accessible devices and buffer memory

Within the following device and buffer memory ranges, external devices can access the Ethernet adapter module.

(1) Devices

Device		Device No. range	Unit
Input	X	0000 to 1FFF	Hexadecimal
Output	Y	0000 to 1FFF	Hexadecimal
Link special relay	SB	0000 to 1FFF	Hexadecimal
Link special register	SW	0000 to 1FFF	Hexadecimal
Special relay	SM	0000 to 2047	Decimal
Special register	SD	0000 to 2047	Decimal
Link register	W	0000 to 1FFF	Hexadecimal

(2) Buffer memory

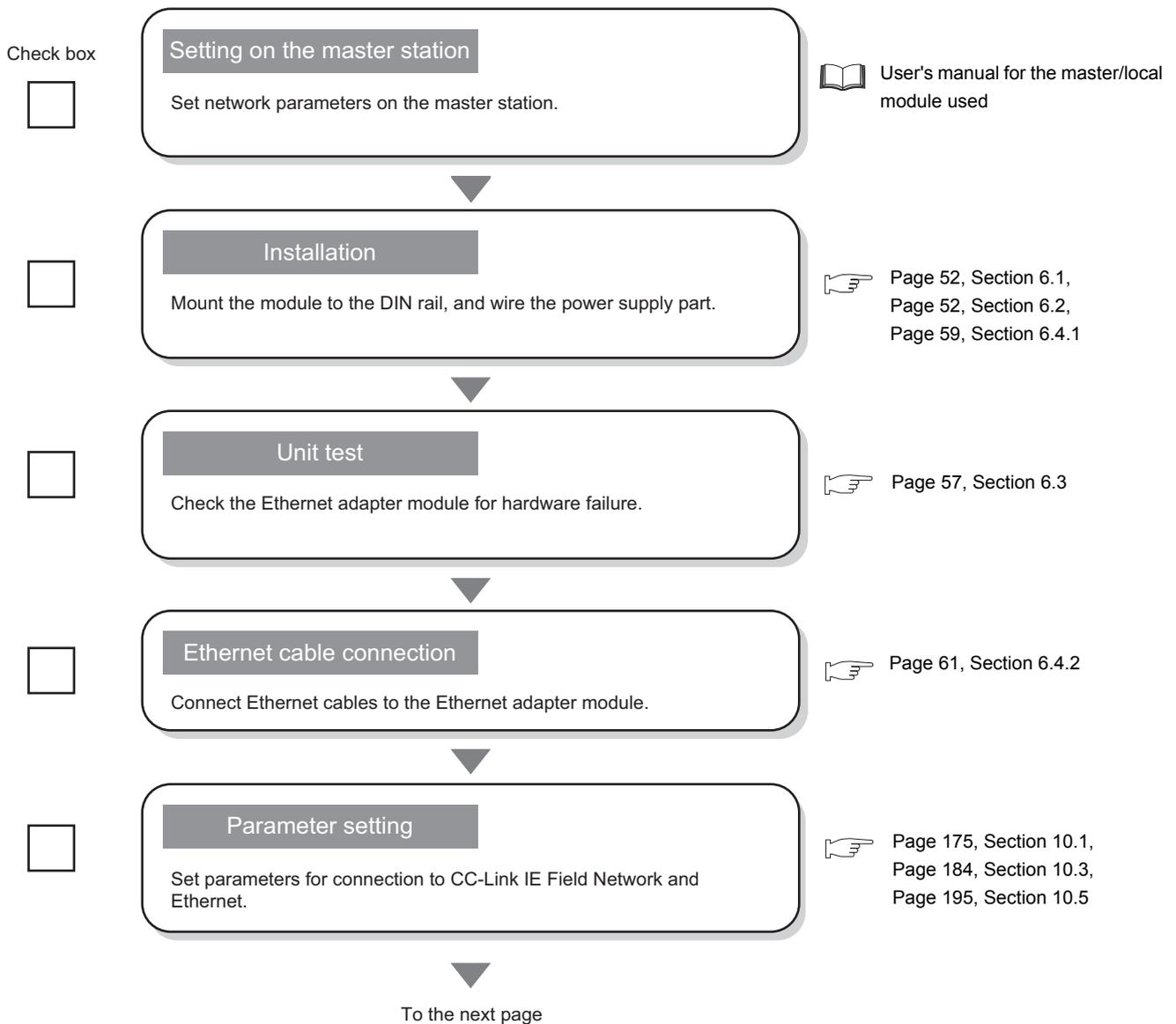
For the access ranges and read and write availabilities, refer to "Buffer Memory List". (☞ Page 37, Section 3.4)

CHAPTER 4 PROCEDURE BEFORE THE OPERATION

This chapter describes the procedure to be taken before operating the Ethernet adapter module.

4.1 Start-Up Procedure

The following shows how to start up the system where the Ethernet adapter module is used.



Check box

Data link start

Shift the switch on the Ethernet adapter module to RUN.

 Page 26, Section 2.2 (2)



CC-Link IE Field Network diagnostics

Check whether communication can be normally performed using the CC-Link IE Field Network diagnostics on the master station.

 User's manual for the master/local module used

 Page 141, Section 9.2.1



Communication with an external device

Send SLMP using an external device.*1 *2

 Page 79, Section 7.1.5 (2)



Ethernet diagnostics

Check whether communication can be normally performed using the Ethernet adapter diagnostics.

 Page 198, Section 10.7

*1 Using the on-demand function enables data to be sent from the Ethernet adapter module to an external device.

( Page 89, Section 7.2)

*2 IP communications can be performed between external devices over CC-Link IE Field Network. ( Page 105, Section 7.3)

CHAPTER 5 SYSTEM CONFIGURATION

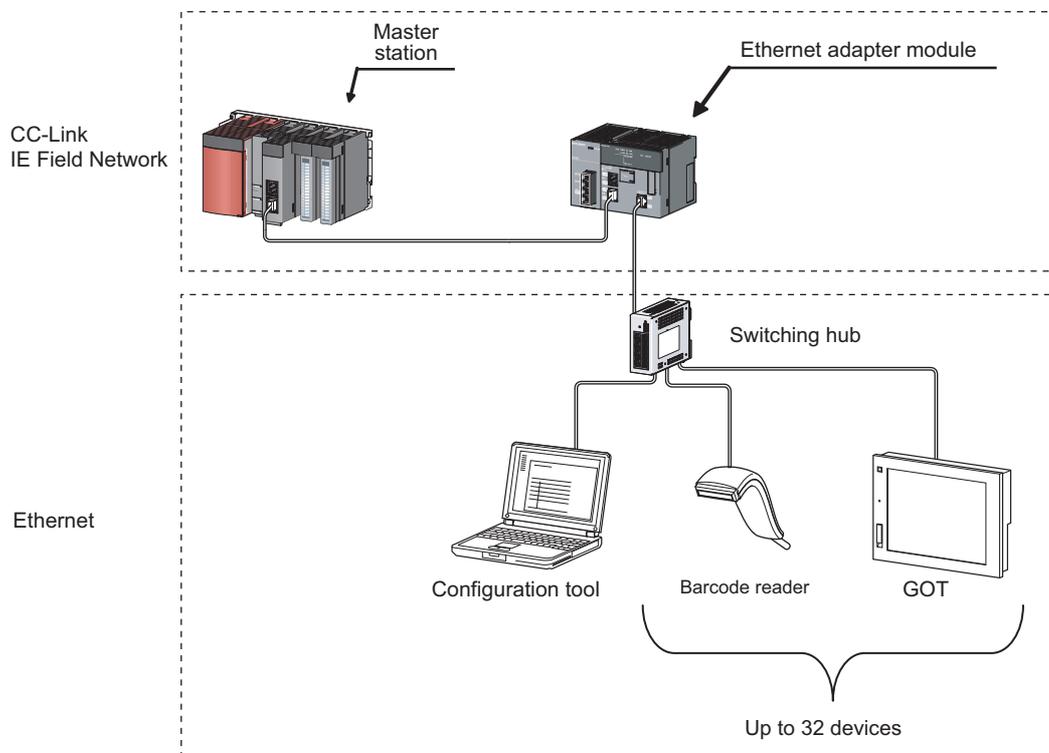
This chapter describes a configuration of the system containing the Ethernet adapter module. For the overall CC-Link IE Field Network configuration, refer to the following.

 User's manual for the master/local module used

5.1 Network Configuration

The following shows a network configuration for the Ethernet adapter module.

Through a switching hub, the Ethernet adapter module can communicate with up to 32 external devices at the same time. Direct connection is also available between the Ethernet adapter module and an external device.



Point

External devices must be on the same network as the Ethernet adapter module; therefore, those on different networks cannot be connected using devices such as a router.

5.2 Network Components

The following shows network components.

5.2.1 CC-Link IE Field Network

For network components of CC-Link IE Field Network, refer to the following.

 User's manual for the master/local module used

5.2.2 Ethernet

(1) Cables

Use the 1000BASE-T or 100BASE-TX compliant Ethernet cables.

Communication speed	Ethernet cable	Connector	Standard
1Gbps	Category 5e or higher, (STP) Straight cable	RJ45 connector	Cables that meet the following standards: • IEEE802.3(1000BASE-T) • ANSI/TIA/EIA-568-B(Category 5e)
100Mbps	Category 5 or higher, (STP) Straight cable	RJ45 connector	Cables that meet the following standards: • IEEE802.3(1000BASE-T/100BASE-TX) • ANSI/TIA/EIA-568-B(Category 5)

(a) Recommended products

Ethernet cables meeting the 1000BASE-T or 100BASE-TX standard are available from Mitsubishi Electric System & Service Co., Ltd. (Cable catalogs are also available.)

Connectors can be customized to the specified length. Please consult your local Mitsubishi service representative.

Type	Model (manufacturer)
Ethernet cable	SC-E5EW series (Mitsubishi Electric System & Service Co., Ltd.)

Remark

- Cable types

The following types are available depending on the operating environment.

- Standard type: Cables used in control panels or indoors
- L type: Cables for outdoor connections

Special cables, such as flame-retardant or water-tight cables, and relay adapters are also available. Please consult your local Mitsubishi Electric System & Service Co., Ltd.

- For order or inquiry on the cables: Mitsubishi Electric System & Service Co., Ltd.
<http://www.melco.co.jp/business/>

(2) Hubs

Use hubs that meet the following conditions 1 to 4. If these conditions are not satisfied, the operation of the hub is not guaranteed.

- Compliant with the IEEE802.3(1000BASE-T/100BASE-TX) standard
- Supporting the auto MDI/MDI-X function
- Supporting the auto-negotiation function
- Switching hub (layer 2 switch)^{*1}

*1 Repeater hubs cannot be used.

(a) Mitsubishi Electric products

Type	Model	Data communication rate
Industrial switching hub	NZ2EHG-T8	1000Mbps/100Mbps/10Mbps
	NZ2EHF-T8	100Mbps/10Mbps

5.3 Applicable Systems

5.3.1 Configuration tool

(1) Operating environment

The following table lists the operating environment of the personal computer where the configuration tool is used.

(a) Computer requirements

Item	Description
Computer	Personal computer running any of the following operating systems
CPU	Specifications recommended for the following operating systems
Memory	
Web browser	Versions recommended for the following operating systems
Hard disk space	512MB or more
Display	Resolution: 1024 × 768 dots or more
Operating system	Microsoft® Windows® XP Professional Operating System (English version) SP2 or later* ¹ Microsoft® Windows® XP Home Edition Operating System (English version) SP2 or later* ¹ Microsoft® Windows Vista® Home Basic Operating System (English version)* ^{1, *2} Microsoft® Windows Vista® Home Premium Operating System (English version)* ^{1, *2} Microsoft® Windows Vista® Business Operating System (English version)* ^{1, *2} Microsoft® Windows Vista® Ultimate Operating System (English version)* ^{1, *2} Microsoft® Windows Vista® Enterprise Operating System (English version)* ^{1, *2} Microsoft® Windows® 7 Home Premium Operating System (English version)* ^{1, *2} Microsoft® Windows® 7 Professional Operating System (English version)* ^{1, *2} Microsoft® Windows® 7 Enterprise Operating System (English version)* ^{1, *2} Microsoft® Windows® 7 Ultimate Operating System (English version)* ^{1, *2} Microsoft® Windows® 7 Starter Operating System (English version)* ^{1, *2}
Interface	Ethernet port

*1 Installation of .NET Framework 2.0 SP2 or later is required.

The .NET Framework 2.0 SP2 or later might have been installed with other software. In this case, the reinstallation of this package is not required.

*2 Not available for logon users whom Parental Controls are set up.

(b) Precautions on the operating systems

- The 64-bit Windows® XP Professional, Windows Vista®, and Windows®7 cannot be used.
- When the logon user right is Guest, the operating systems cannot be used.
- When Windows® Firewall settings are enabled, direct connection may not function properly.
Disable Windows® Firewall settings.
- The following functions are not available. If any of these is used, this product may not function properly.
 - Application start in Windows® Compatibility Mode
 - Fast User Switching
 - Remote Desktop
 - Big Fonts (in the Advanced Setting of Screen Properties)
 - Hibernate and Standby of Windows®

5.3.2 Software package

GX Works2 allows the status check of the Ethernet adapter module and access to other stations.

GX Developer cannot be used.

Software	Version
GX Works2	Version 1.40S

(1) Precaution

If a GX Works2 version earlier than the above is used, the dialog box will not be displayed correctly.

CHAPTER 6 INSTALLATION AND WIRING

This chapter explains installation of the Ethernet adapter module and the wiring method.

6.1 Installation Environment

Install the Ethernet adapter module in an environment that meets the general specifications. (☞ Page 29, Section 3.1)

Do not install the Ethernet adapter module in the place where:

- The ambient temperature is outside the range of 0°C to 55°C.
- The ambient humidity is outside the range of 5%RH to 95%RH.
- Condensation occurs due to a rapid temperature change.
- Corrosive or combustible gas is present.
- There is conductive powder such as dust and iron powder, oil mist, salinity, or organic solvent.
- The module is exposed to direct sunlight.
- A strong electric or magnetic field is generated.
- The module is directly subject to vibrations or shocks.

6.2 Installation

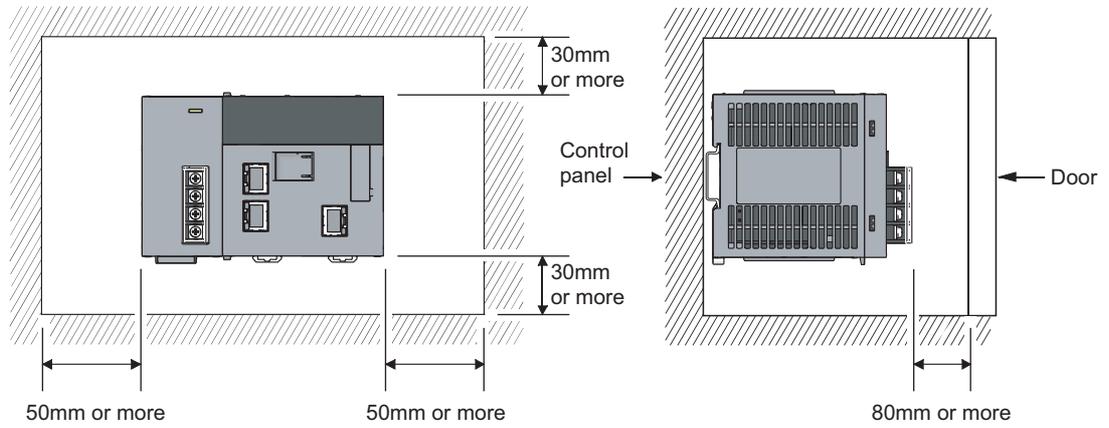
When installing the Ethernet adapter module to a control panel or any other place, consider the operability, maintainability, and environmental resistance.

6.2.1 Installation precautions

- (1) Do not directly touch any conductive parts and electronic components of the Ethernet adapter module. Doing so can cause malfunction or failure of the Ethernet adapter module.**
- (2) Do not drop or apply strong shock to the Ethernet adapter module.**
- (3) Do not remove the printed-circuit board of the Ethernet adapter module from the case. Doing so may cause failure.**
- (4) Do not release the levers located at the top and bottom of the Ethernet adapter module. Doing so may cause malfunction or failure of the Ethernet adapter module.**

6.2.2 Mounting the module to a control panel

To ensure good ventilation and to make replacement of the Ethernet adapter module easy, provide a distance between the top or bottom of the module and other structures or parts as shown below.

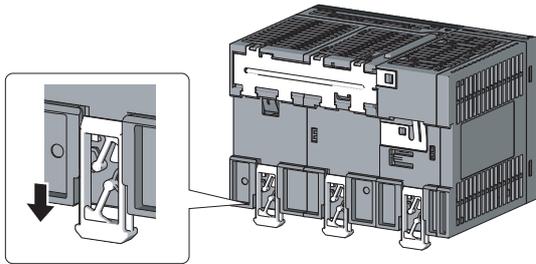


6.2.3 Mounting the modules on a DIN rail

The Ethernet adapter module must be mounted on a DIN rail.

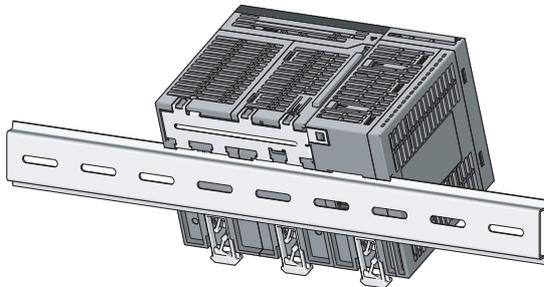
The procedure for mounting the Ethernet adapter module on a DIN rail is shown below.

(1) Mounting procedure

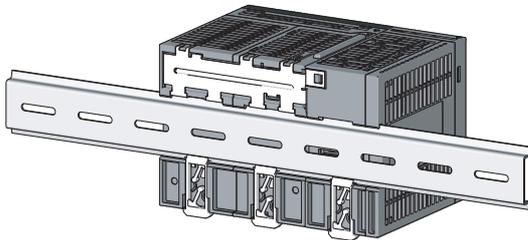


- 1. Pull down all of the DIN rail hooks on the back of the Ethernet adapter module.**

Pull it until a click sound is heard.



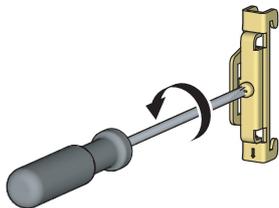
- 2. Hang the upper tabs of the Ethernet adapter module on the DIN rail, and push the module in position.**



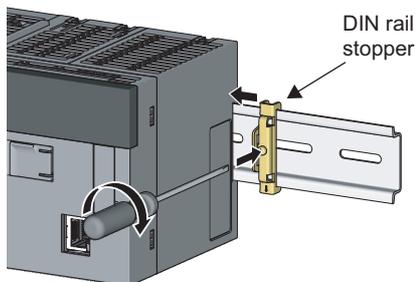
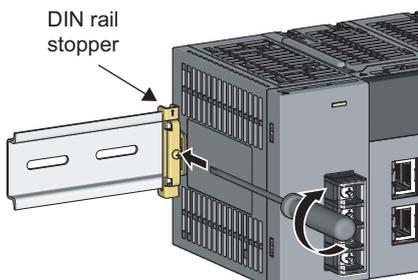
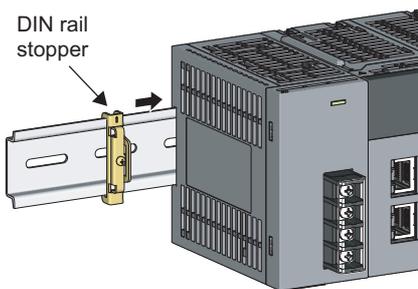
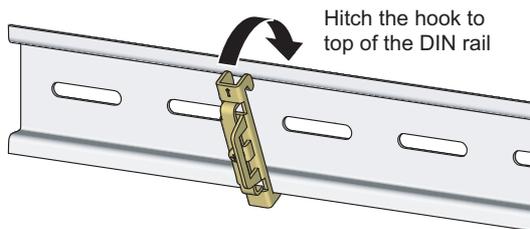
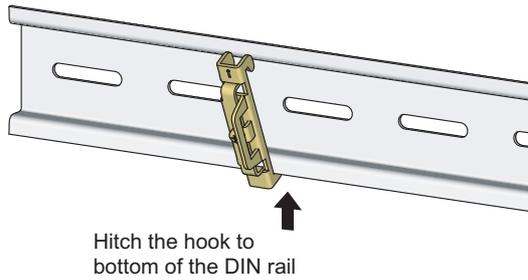
- 3. Lock the DIN rail hooks of the Ethernet adapter module to secure it in position.**

Push each hook until a click sound is heard.

If you cannot reach the hooks, use a tool such as a screwdriver.



- 4. Loosen the screw on the DIN rail stopper.**



5. Hitch the bottom hook of the DIN rail stopper to the bottom of the DIN rail.

Hitch the hook according to the orientation of the arrow on the front of the stopper.

6. Hitch the upper hook of the DIN rail stopper to the top of the DIN rail.

7. Slide the DIN rail stopper to the left end of the Ethernet adapter module.

8. Tighten the screw of the DIN rail stopper with a screwdriver.

9. Attach another DIN rail stopper on the right side of the Ethernet adapter module by the same procedure as the left side.

(2) Removal procedure

The Ethernet adapter module can be removed from the DIN rail in reverse order of the mounting procedure.

(3) Applicable DIN rail models (IEC 60715)

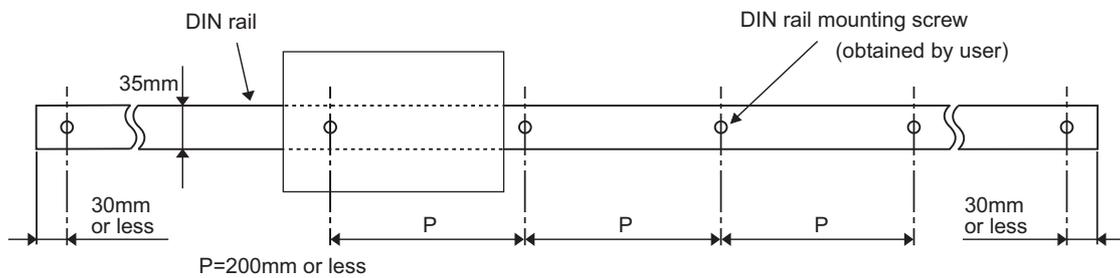
- TH35-7.5Fe
- TH35-7.5Al
- TH35-15Fe

(4) DIN rail stopper

Use stoppers that can be attached to the DIN rail.

(5) Interval between DIN rail mounting screws

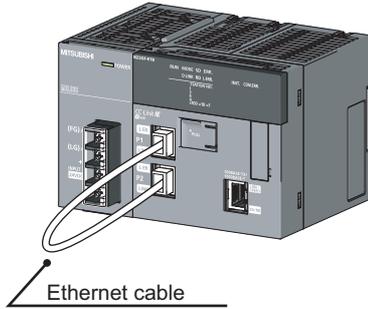
To ensure the strength of the DIN rail, tighten DIN rail mounting screws (sold separately) 30mm away from the both edges of the DIN rail and at intervals of 200mm or less.



6.3 Testing the Module Before Wiring

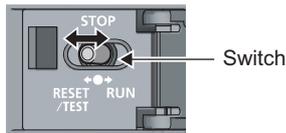
(1) Unit test

Perform a unit test to check the Ethernet adapter module for hardware failure.

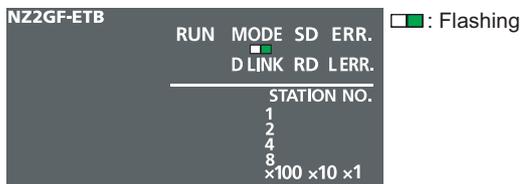


1. Turn off the power.
2. Connect PORT1 and PORT2 of the Ethernet adapter module with an Ethernet cable.

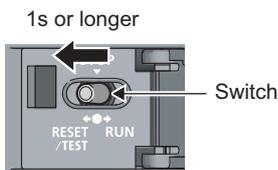
Repeat at intervals of less than 1s.



3. Turn on the power.
4. With the switch on the Ethernet adapter module, repeat 3 cycles of STOP → RESET/TEST → STOP, taking less than 1 second per cycle. (The MODE LED flashes after the third cycle.)



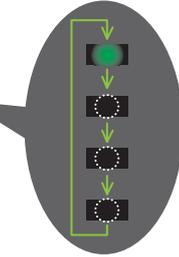
5. Hold the switch on the Ethernet adapter module in the RESET/TEST position for 1 second or more.



```

NZ2GF-ETB
RUN  MODE SD ERR.
      █  █  █
D LINK RD LERR.
-----
      STATION NO.
      1
      2
      4
      8
      ×100 ×10
  
```

█ : On
 : Flashing



6. The unit test starts.

The MODE LED starts flashing, and the ×1 and ×10 LEDs repeat turning and off in the sequence of 1→2→4→8→1... and so on.

When completed

```

NZ2GF-ETB
RUN  MODE SD ERR.
      █  █  █
D LINK RD LERR.
-----
      STATION NO.
      1
      2
      4
      8
      ×100 ×10 ×1
  
```

█ : On
 : Flashing

7. When the unit test is completed, flashing of the ×1 and ×10 LEDs is stopped, and the D LINK LED turns on.

- When completed
The D LINK LED turns on with the ERR. LED off.
- When failed
The following LEDs turn on.
- Either of the ×1 and ×10 LEDs
- ERR. LED
- D LINK LED

When failed

```

NZ2GF-ETB
RUN  MODE SD ERR.
      █  █  █
D LINK RD LERR.
-----
      STATION NO.
      1
      2
      4
      8
      ×100 ×10 ×1
  
```

█ : On
 : Flashing

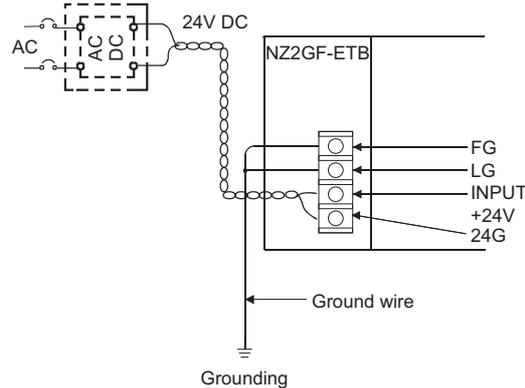
If the unit test fails, replace the Ethernet cable and perform the test again. If it fails again, the Ethernet adapter module may have hardware failure. Please consult your local Mitsubishi representative, with a detailed explanation of the problem.

6.4 Wiring

6.4.1 Wiring of the power supply part

(1) Wiring method

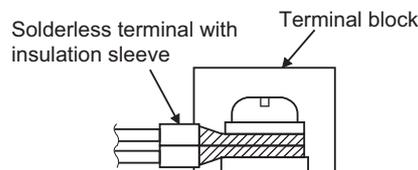
The following figure shows an example of wiring to the power supply part.



(2) Precautions

Take the following precautions when wiring the power supply.

- Considering the rated current and inrush current of the power supply part, connect a circuit breaker having an appropriate sensing property or an external fuse causing proper blowout. (A 10A circuit breaker or external fuse is recommended.)
- To minimize a voltage drop, use thickest possible power cables (up to 2mm²), and connect them in the shortest distance by finely twisting them.
- Do not install the power cables together with the main circuit lines (high voltage and large current) and Ethernet cables. Keep a distance of 100mm or more between them.
- After wiring, always attach the included terminal cover to the power supply part, and do not touch any terminal while the power is on or the module is operating.
- Use a Class 2 power supply for the external power supply which inputs power to the power supply part.
- Use solderless terminals when wiring the terminal block of the power supply part. To prevent short-circuit that may occur when a screw become loose, use a solderless terminal with insulation sleeve, of which thickness is 0.8mm or less. Up to two solderless terminals can be connected to one terminal block.



- Use UL-approved solderless terminals and, for processing, use a tool recommended by their manufacturer.
- Tighten the terminal screws on the power supply part within the applicable torque range of 0.66 to 0.89N·m.
- Use the following wires for connection to the power supply part.

Applicable wire size	Material	Temperature rating
0.75 to 2mm ² (18 to 14AWG) (stranded wire)	Copper	75°C or higher

- An input of a signal of a different voltage level may cause malfunction or equipment failure.
- When supplying power to the power supply part, select a power supply having sufficient power capacity.
(Double power capacity or more is recommended.)

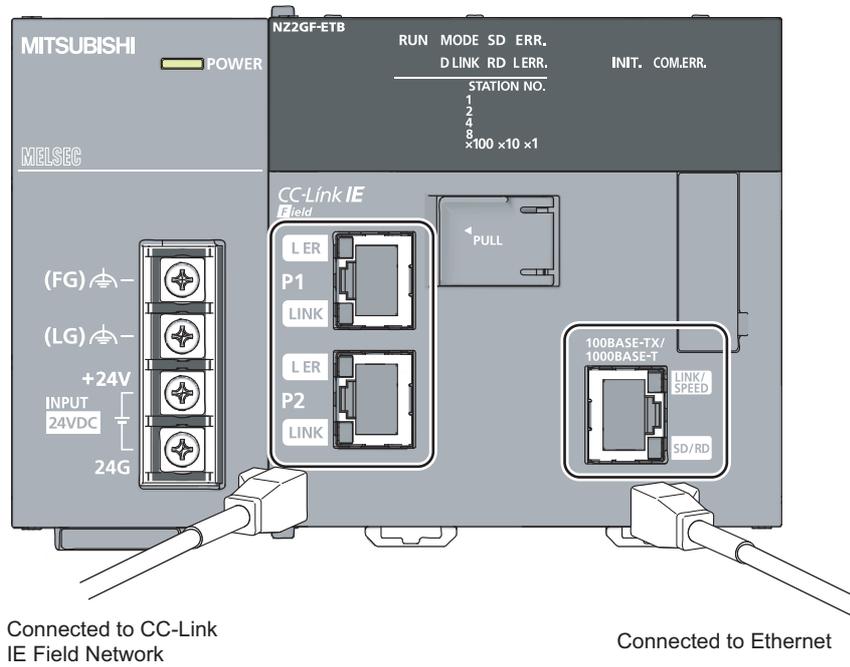
Point 

For compliance with the EMC directive, refer to "EMC and Low Voltage Directives" in this manual.

 Page 224, Appendix 8

6.4.2 Ethernet cable wiring

The following figure shows the respective ports connected to CC-Link IE Field Network and Ethernet.



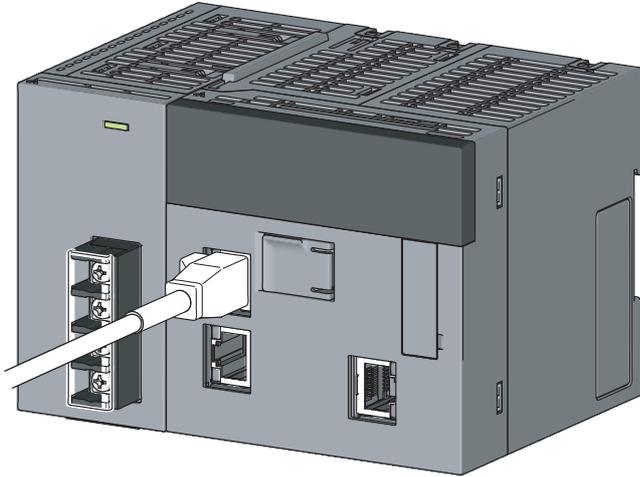
6

6-4 Wiring
6.4.2 Ethernet cable wiring

(1) Connecting the Ethernet cable

For Ethernet cables, refer to "Network Components". (☞ Page 48, Section 5.2.2 (1))

(a) Connection



1. Turn off the power.
2. Insert the Ethernet cable connector into the port until a click sound is heard. Pay attention to the orientation of the connector.

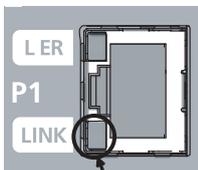
3. Turn on the power.
4. Power on the external device connected to the port.
5. Check if the LED for the port of the connected Ethernet cable is on.

The time between the power-on and the LINK/SPEED LED turning on may vary. The LINK/SPEED LED usually turns on in a few seconds. Note, however, that the time may be extended further if the linkup process is repeated depending on the status of the device on the line.

If the LINK/SPEED LED does not turn on, refer to the troubleshooting section and take corrective actions.

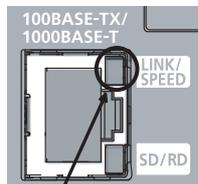
(☞ Page 139, CHAPTER 9)

● Port for CC-Link IE Field Network connection



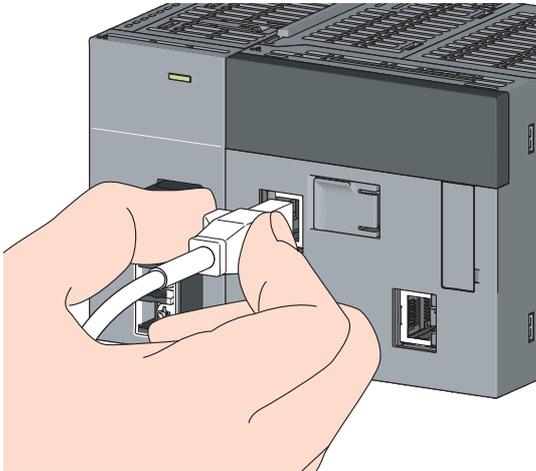
On

● Port for Ethernet connection



On

(b) Disconnection

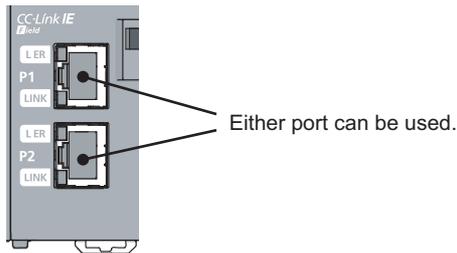


1. Turn off the power.
2. Pull out the Ethernet cable while pinching the retaining clip on the connector.

Point!

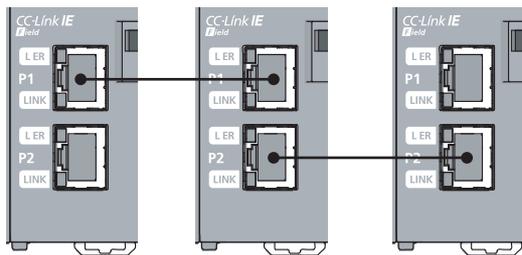
There is no need to distinguish between PORT1 and PORT2.

- When using only one port in a star topology, either of PORT1 or PORT2 can be used.

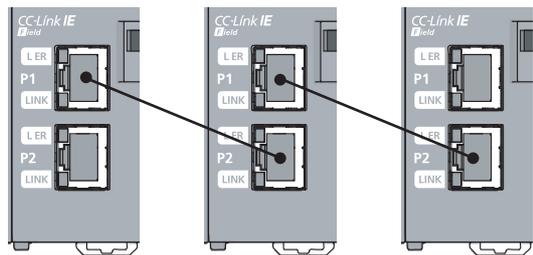


- When using the two ports in a line topology and a ring topology, there is no restriction on the order in which PORT1 and PORT2 are connected. For example, PORT1 can be connected to PORT1 or PORT2.

Connection between PORT1s or PORT2s



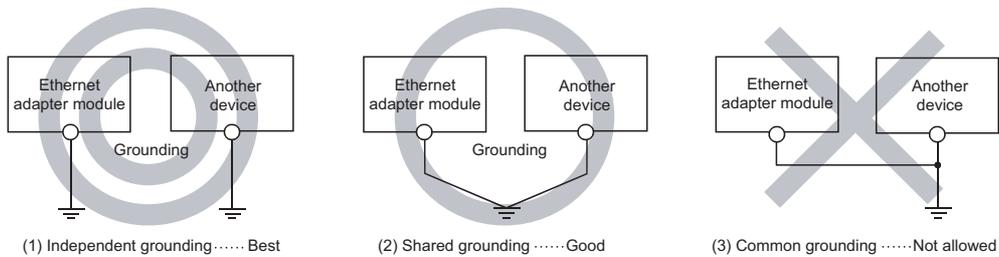
Connection between PORT1 and PORT2



6.4.3 Grounding

Observe the following:

- Provide independent grounding when possible. Ground the FG and LG terminals to the protective ground conductor. (Grounding resistance: 100Ω or less)
- If independent grounding is not possible, employ shared grounding, making all of the ground wires to the same length.



- Use the thickest possible ground wires (up to 2mm^2). Also, bring the grounding point close to the Ethernet adapter module as much as possible so that the ground wire can be shortened.

6.4.4 Precautions

This section provides precautions for wiring to CC-Link IE Field Network and Ethernet.

(1) Ethernet cables

Use Ethernet cables that satisfy the 1000BASE-T or 100BASE-TX standard. (☞ Page 48, Section 5.2.2 (1))

(2) Laying Ethernet cables

- Place the Ethernet cables in a duct or clamp them. If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the Ethernet adapter module or cables or malfunction due to poor contact.
- Do not touch the core of the cable connector or the port, and protect it from dirt and dust. If oil from your hand, dirt, or dust sticks to the core, it can increase transmission loss, causing data link to fail.
- Check the Ethernet cables for:
 - Disconnection
 - Short circuit
 - Any connector connection problem

(3) Connecting or disconnecting the Ethernet cable

When connecting or disconnecting the Ethernet cable, hold the connector part of the cable. Failure to do so may result in damage to the Ethernet adapter module or the cable or malfunction due to poor contact.

(4) Bend radius of the Ethernet cable

There are restrictions on the bend radius of the Ethernet cable. Check the specifications of the Ethernet cable used.

(5) If the retaining clip of the Ethernet cable is broken

Do not use any Ethernet cable that has a broken retaining clip. Doing so may cause cable disconnection or malfunction.

(6) Unused Ethernet ports

To prevent dust from entering the module, attach the provided connector cover.

(7) Maximum station-to-station distance (maximum Ethernet cable length)

The maximum station-to-station distance is 100m. However, it may be shorter depending on the environment. For details, contact the manufacturer of the cables used.

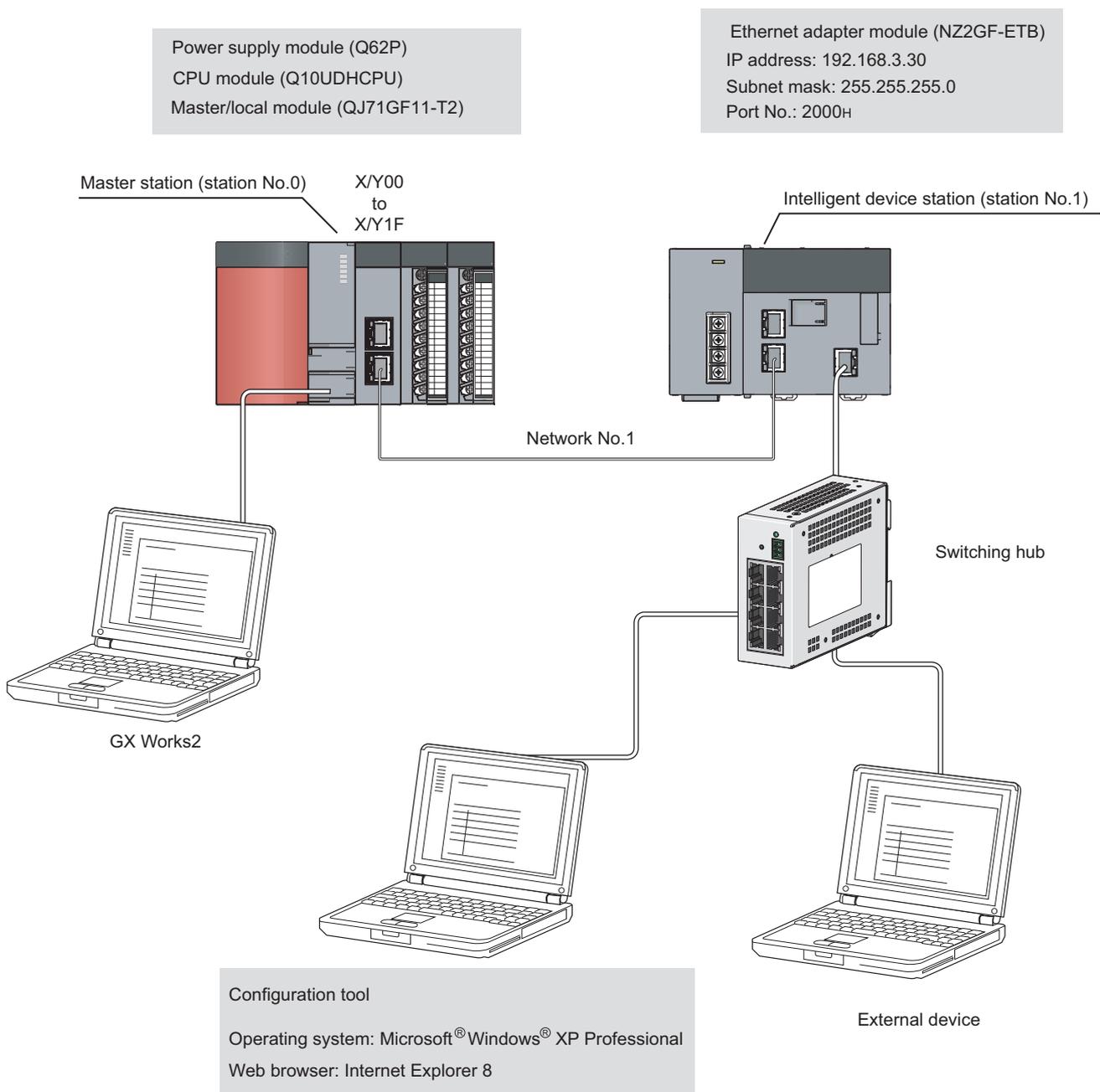
CHAPTER 7 COMMUNICATION OF THE ETHERNET ADAPTER MODULE

7.1 SLMP Communication and Cyclic Transmission

Communication examples of SLMP communication and cyclic transmission are given below.

7.1.1 System configuration

The following system configuration is used as an example.

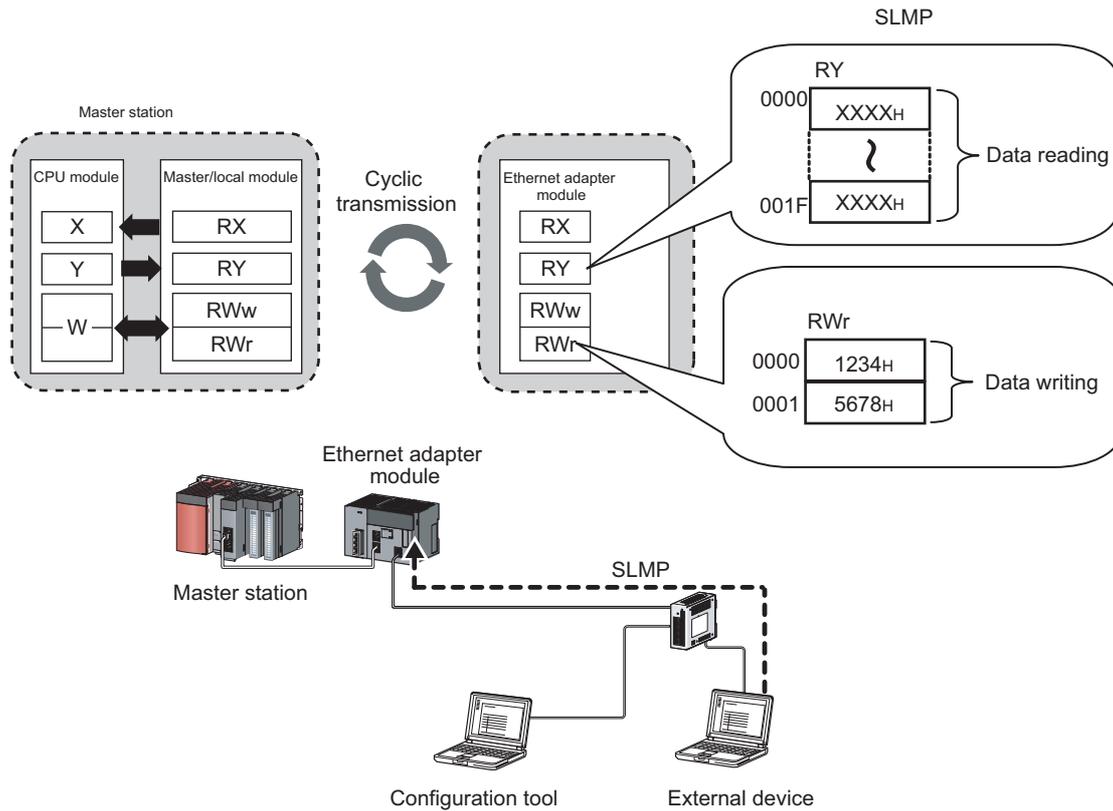


7.1.2 Communication details

The following SLMP message is sent from the external device to the Ethernet adapter module.

- By Read (command: 0401), 32-bit data in RY0000 to RY001F (Y0000 to Y001F) are read out.
- By Write (command: 1401), 2-word data (1234_H and 5678_H) are written to RWr0000 to RWr0001 (W1000 to W1001).

Through cyclic transmissions, data in link devices of the Ethernet adapter module are periodically exchanged with the CPU module's devices.



(1) Communication settings

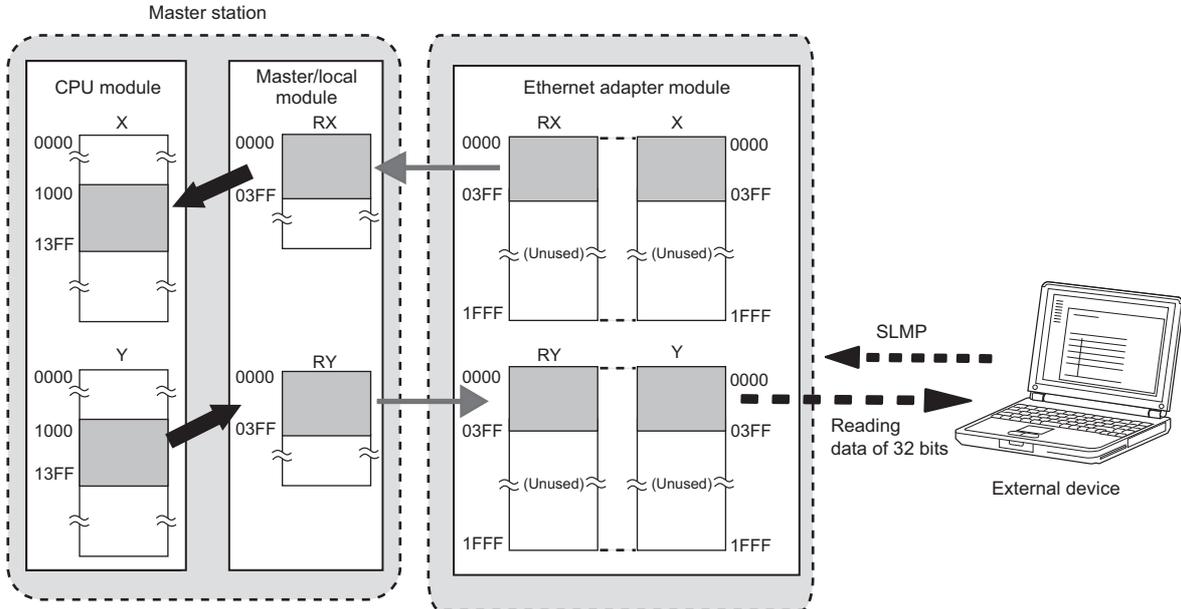
Item	Setting
Protocol	TCP/IP
TCP connection type	Unpassive
Communication data code	Binary code

(2) SLMP commands

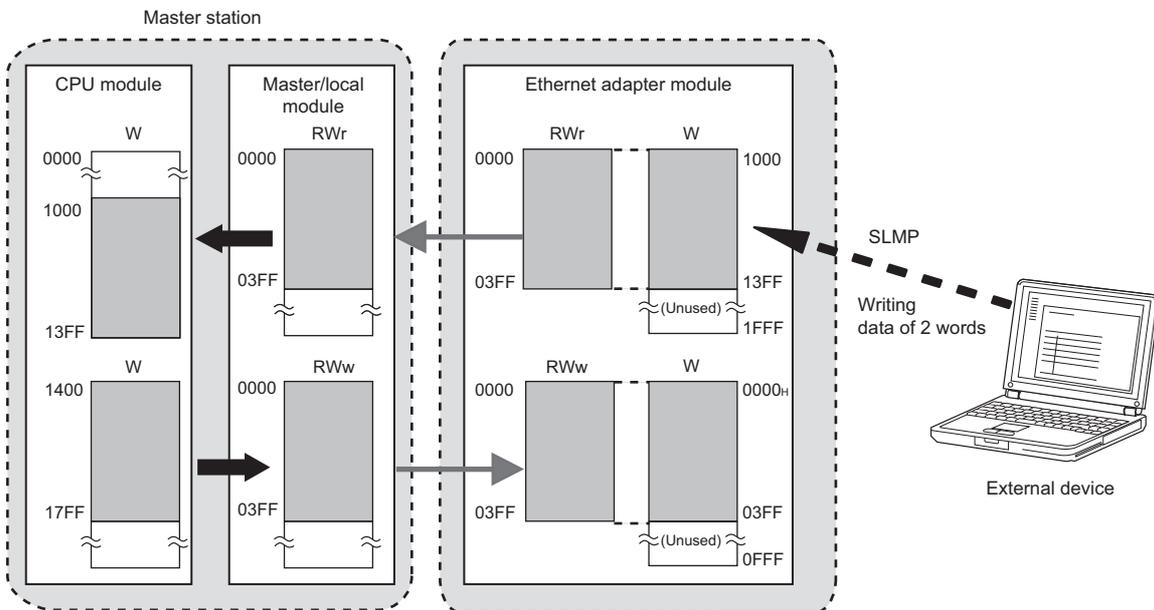
Item		Command	Subcommand	Description
Type	Operation			
Device	Read	0401	0000	Reads values from bit devices (of consecutive device numbers) in units of 16 points.
	Write	1401	0000	Writes values to word devices (of consecutive device numbers) in units of one point.

(3) Link device assignment

(a) Assignment of RX and RY



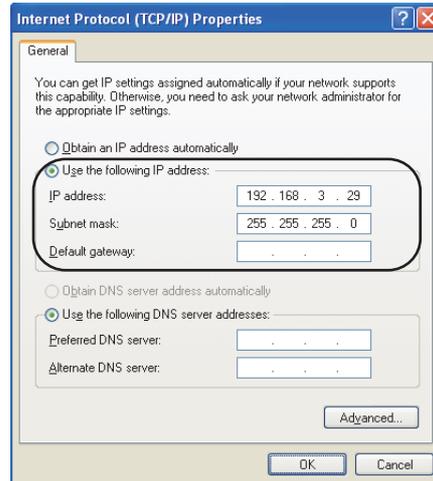
(b) Assignment of RWr and RWw



7.1.3 Network setting on the configuration computer

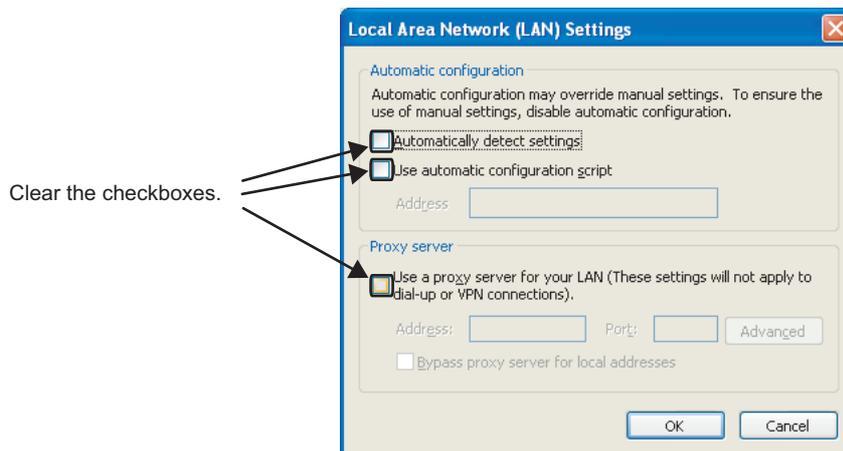
1. Open the "Internet Protocol (TCP/IP) Properties" dialog box on the personal computer, and configure the settings as shown below.

☞ Control Panel ⇒ "Network and Internet Connections" ⇒ "Network Connections" ⇒ "Local Area Connection" ⇒ "General" ⇒ button ⇒ "Internet Protocol (TCP/IP)" ⇒ button



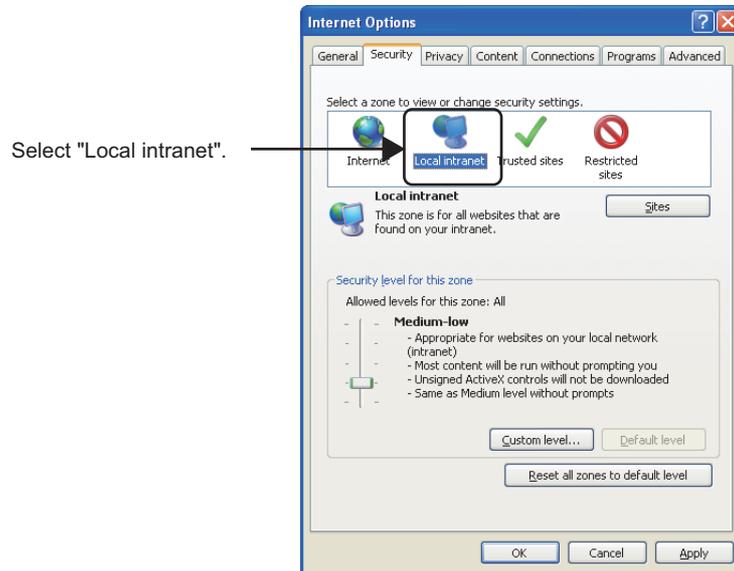
2. Open the "Local Area Network (LAN) Settings" dialog box from the Web browser, and configure the settings as shown below. If the same network settings are applied to the Ethernet adapter module and the proxy server, the following settings are not necessary.

☞ Web browser ⇒ [Tools] ⇒ [Internet Options] ⇒ "Connections" ⇒ button

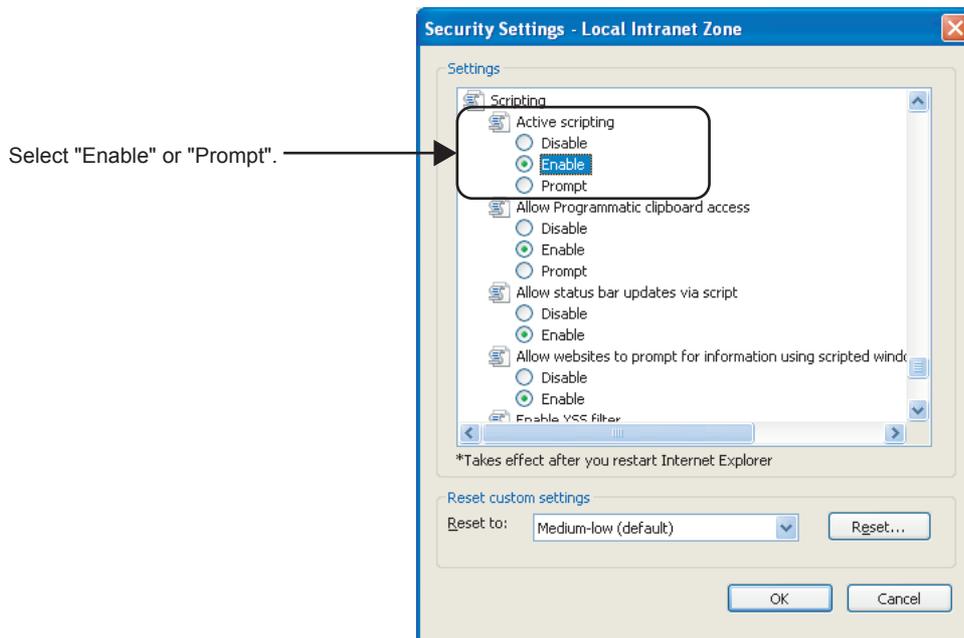


3. Open the "Internet Options" dialog box from the Web browser, and select "Local Intranet Zone" as shown below

Web browser ⇨ [Tools] ⇨ [Internet Options] ⇨ "Security"



4. After that, click the button and configure the settings as shown below.



When "Prompt" is selected, the following dialog box may be displayed during the start-up of the configuration tool. If this occurs, click the button.



7.1.4 Connection to CC-Link IE Field Network

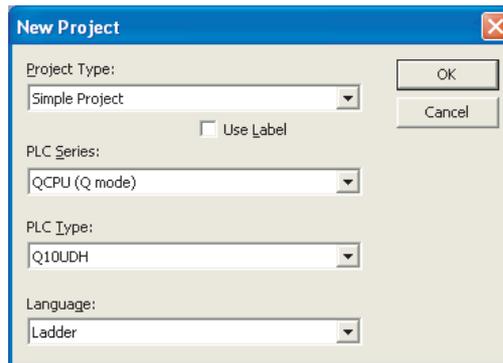
(1) Setting in the master station

Use GX Works2 to set the parameters in the master station. Use the default settings for the parameters other than those set below.

1. Create a project on GX Works2.

Select "QCPU (Q mode)" for "PLC Series", and "Q10UDH" for "PLC Type".

 [Project] ⇒ [New...]



2. Open the "Network Parameter" setting window to set the parameters as follows.

 Project window ⇒ [Parameter] ⇒ [Network Parameter] ⇒ [Ethernet/CC IE/MELSECNET]

Setting

	Module 1	Module 2	Module 3	Module 4
Network Type	CC IE Field (Master Station)	None	None	None
Start I/O No.	0000			
Network No.	1			
Total Stations	1			
Group No.	0			
Station No.	0			
Mode	Online (Normal Mode)			
Network Configuration Settings				
Network Operation Settings				
Refresh Parameters				
Interrupt Settings				
Specify Station No. by Parameter				

Necessary Setting(No Setting / Already Set) Set if it is needed(No Setting / Already Set)

Interlink Transmission Parameters Start I/O No. : Valid Module During Other Station Access 1

Please input 16-point unit(HEX) to start I/O No. in which module is mounted.

Acknowledge XY Assignment Routing Parameters Assignment Image Check End Cancel

3. Click the  button to set the parameters as follows.

Set up Network configuration.

Assignment Method
 Points/Start
 Start/End

The column contents for refresh device will be changed corresponding to refresh parameter. Please reopen the window after completing refresh parameter setting when changing refresh parameter.

Number of PLCs	Station No.	Station Type	RX/RX Setting			RWw/RWr Setting		
			Points	Start	End	Points	Start	End
0	0	Master Station						
1	1	Intelligent Device Station	1024	0000	03FF	1024	0000	03FF

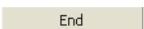
4. After the setting, click the  button.

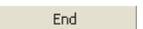
5. Click the  button to open the refresh parameter setting window. Set the parameters as follows.

Assignment Method
 Points/Start
 Start/End

	Link Side						PLC Side				
	Dev. Name	Points	Start	End			Dev. Name	Points	Start	End	
Transfer SB	SB	512	0000	01FF	↔	SB	512	0000	01FF		
Transfer SW	SW	512	0000	01FF	↔	SW	512	0000	01FF		
Transfer 1	RX	1024	0000	03FF	↔	X	1024	1000	13FF		
Transfer 2	RY	1024	0000	03FF	↔	Y	1024	1000	13FF		
Transfer 3	RWr	1024	0000	03FF	↔	W	1024	001000	0013FF		
Transfer 4	RWw	1024	0000	03FF	↔	W	1024	001400	0017FF		
Transfer 5					↔						
Transfer 6					↔						
Transfer 7					↔						
Transfer 8					↔						

Default Check End Cancel

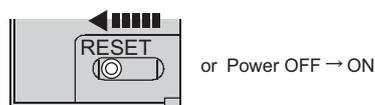
6. After the setting, click the  button.

7. In the network parameter setting window, click the  button.

8. Write the set parameters to the CPU module on the master station.

 [Online] ⇌ [Write to PLC]

9. Reset the CPU module or power off and on the system.

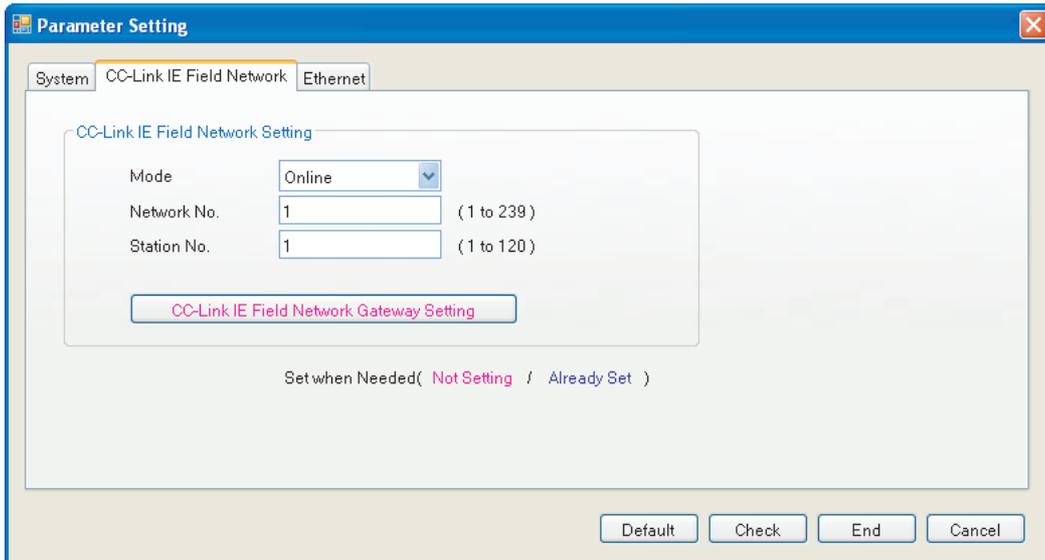


(2) Setting in the Ethernet adapter module

Set the parameters to connect the Ethernet adapter module to CC-Link IE Field Network using the configuration tool.

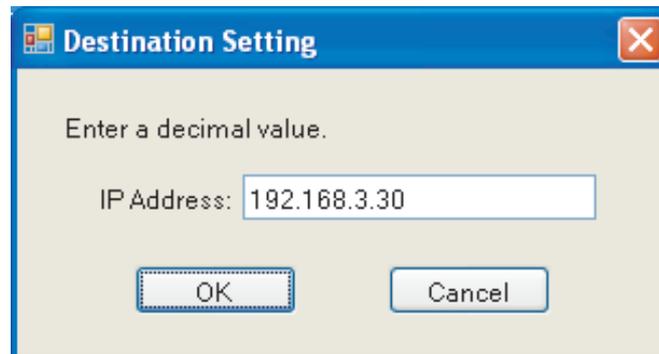
1. Start up the configuration tool using a Web browser. (☞ Page 179, Section 10.1.2)
2. Open the "Parameter Setting" dialog box in the configuration tool to set the parameters as follows.

☞ Setting item tree ⇨ NZ2GF-ETB ⇨ [Parameter] ⇨ "CC-Link IE Field Network"



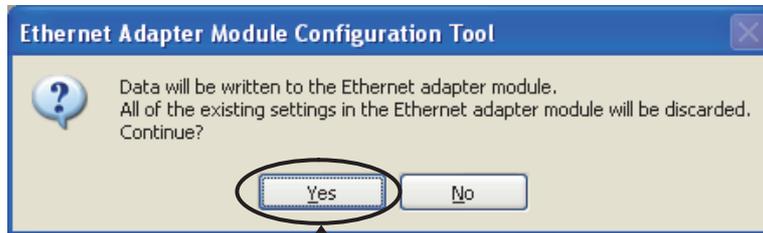
3. Click the button.
4. Set the IP address of the connected Ethernet adapter module. Open the "Destination Setting" dialog box in the configuration tool to enter the address as follows.

☞ [Online] ⇨ [Destination Setting]



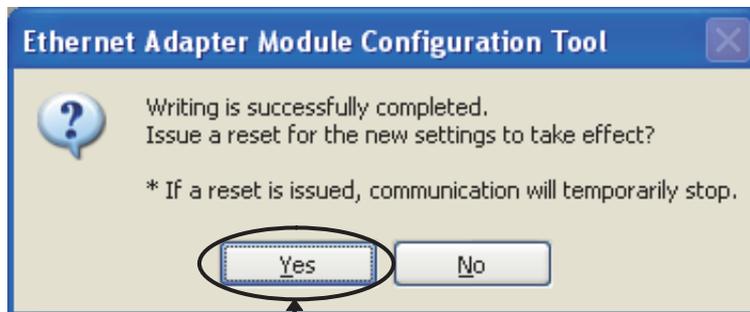
5. Write the set parameters to the Ethernet adapter module. (Set the switch on the Ethernet adapter module to STOP.)

 [Online] ⇌ [Write]



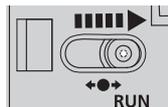
Click

6. The following dialog box appears.



Click

7. Set the switch on the Ethernet adapter module to RUN.



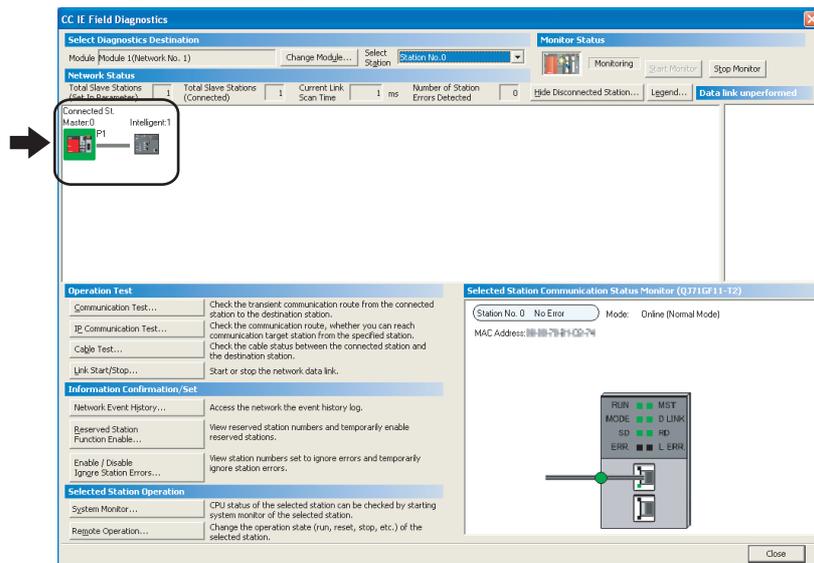
(3) Checking the connection

After setting the parameters for the master station and the Ethernet adapter module, check if data link can be normally performed between them, by using the CC-Link IE Field Network diagnostics of GX Works2 connected to the master station.

1. From the menu of GX Works2, activate the CC-Link IE Field Network diagnostics.

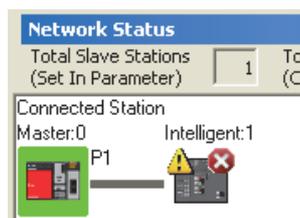
[Diagnostics] ⇒ [CC IE Field Diagnostics]

The following shows the normal condition.



If a mark, such as , , and , is displayed in "Network Status", an error has occurred. Identify the cause of the error and take corrective action. ( User's manual for the master/local module used)

Ex. If an error occurred in the Ethernet adapter module, the dialog box appears as follows.



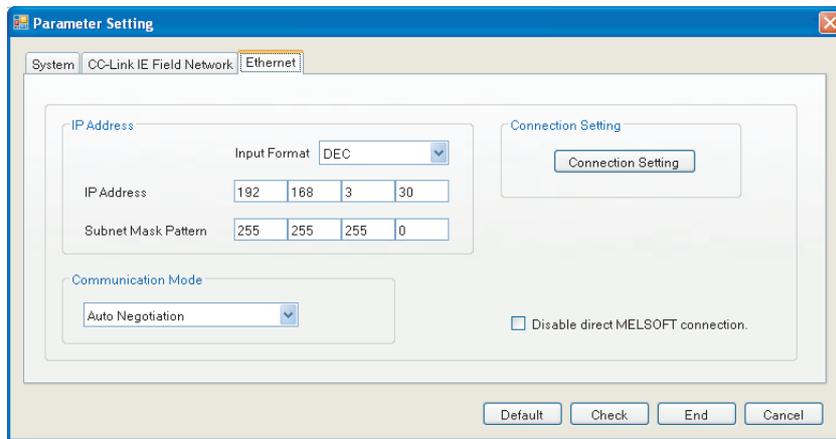
7.1.5 Connection to the Ethernet

(1) Configuring the Ethernet adapter module

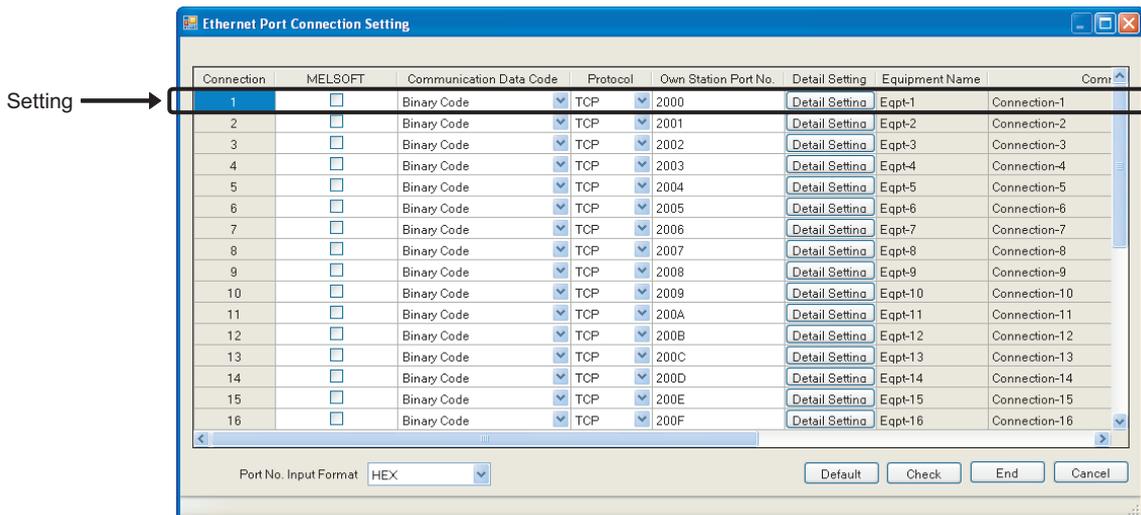
Configure the parameters for communication between the Ethernet adapter module and external devices, using the configuration tool.

1. Start up the configuration tool using a Web browser. (👉 Page 179, Section 10.1.2)
2. Open the "Parameter Setting" dialog box in the configuration tool to set the parameters as follows.

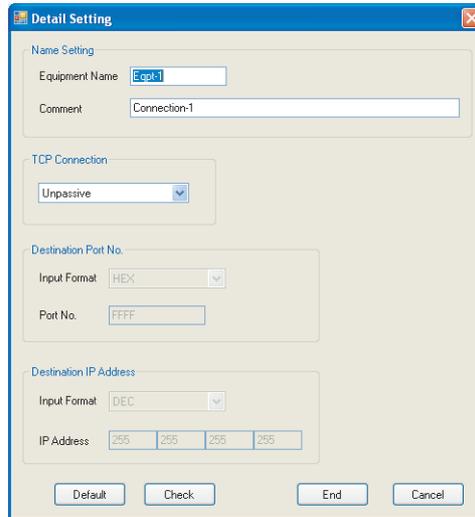
👉 Setting item tree ⇨ NZ2GF-ETB ⇨ [Parameter] ⇨ "Ethernet"



3. Click the  button to display the "Ethernet Port Connection Setting" window. Set it up as shown below.

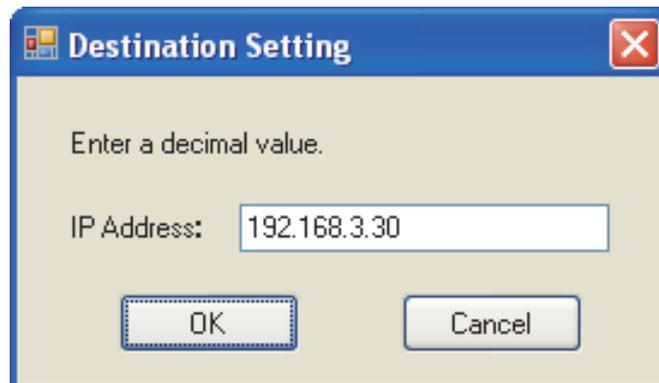


4. Click the **Detail Setting** button to display the "Detail Setting" dialog box. Set the parameters as follows.



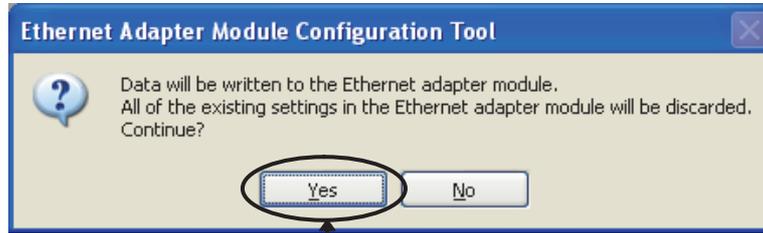
5. Click the **End** button.
6. In the "Ethernet Port Connection Setting" window, click the **End** button.
7. In the "Parameter Setting" dialog box, click the **End** button.
8. Set the IP address of the connected Ethernet adapter module. In the "Destination Setting" dialog box of the configuration tool, enter a value as shown below.

 [Online] ⇔ [Destination Setting]



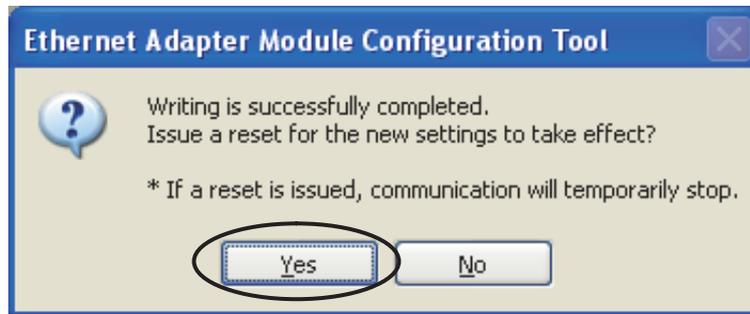
- 9. Write the configured parameters to the Ethernet adapter module. (Set the switch on the Ethernet adapter module to STOP.)**

 [Online] ⇔ [Write]



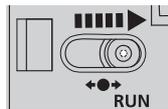
Click

- 10. The following dialog box is displayed.**



Click

- 11. Set the switch on the Ethernet adapter module to RUN.**



(2) Creating a program

A program example is shown in this section. Programs should be executed from an external device.

Point

- In the program example shown in this section, the minimum processing is described. When including any other processing such as error handling, add the corresponding program to it.
- If the Ethernet adapter module is powered off and then on, data written from the external device to the Ethernet adapter module using SLMP will be cleared. Therefore, create a program of communicating data while handshaking with the master station.

(a) Programming environment

Development environment: Microsoft® Visual C++® 2005

Library that requires a link: ws2_32.lib

(b) Configuration of the Ethernet adapter module

Item	Setting
IP address	192.168.3.30
Subnet mask	255.255.255.0
Port No.	2000 _H

(c) Program example

//EthernetAD_test.cpp: Defines the entry point of the console application.
//

```
#include "stdafx.h"
```

```

/*****
/**
/**      Sample program (program name: EthernetAD_test.cpp)
/**
/**      This is a sample program for testing a connection between
/**      the Ethernet adapter module and the external device.
/**      This program reads RY0000 to RY001F of the Ethernet adapter module
/**      and writes data to RWr0000 and RWr0001.
/**
/**      Copyright(C) 2010 Mitsubishi Electric Corporation
/**      All Rights Reserved
/**
*****/

```

```
#include <winsock2.h>
```

```

#define FLAG_OFF 0           // End flag OFF
#define FLAG_ON 1          // End flag ON
#define SOCK_OK 0          // Normal end
#define SOCK_NG -1         // Abnormal end
#define BUF_SIZE 4096      // Receive buffer size
#define ERROR_INITIAL 0    // Initial error
#define ERROR_SOCKET 1     // Socket creation error
#define ERROR_BIND 2      // Bind error
#define ERROR_CONNECT 3   // Connect error
#define ERROR_SEND 4      // Send error
#define ERROR_RECV 5      // Receive error
#define ERROR_SHUTDOWN 6  // Shutdown error
#define ERROR_CLOSE 7     // Line close error

```

```

// Definitions for checking the receiving data size
#define SEND_REQ_1 25 // The size of the request message to be sent for device writing (3E frame, binary)
#define RECV_ANS_1 11 // The size of the response message to be received for device writing (3E frame, binary)

#define SEND_REQ_2 21 // The size of the request message to be sent for device reading (3E frame, binary)
#define RECV_ANS_2 15 // The size of the response message to be received for device reading (3E frame, binary)

typedef struct sck_inf{
    struct          in_addr my_addr;
    unsigned short  my_port;
    struct          in_addr aj_addr;
    unsigned short  aj_port;
}sck_inf;

int nErrorStatus; // Error information stored in variable
int Dmykeyin; // Dummy key input
int Closeflag; // Connection end flag
int socketno;

int main()
{
    WORD wVersionRequested = MAKEWORD(1, 1); // Winsock Ver.1.1 request
    WSADATA wsaData;

    int j; // For command identification 1
    int k; // For command identification 2

    int i; // Counter for data display
    char disp[2]; // Workspace for data display

    char s_buf[BUF_SIZE]; // Send buffer
    char r_buf[BUF_SIZE]; // Receive buffer

    int length; // Receive data length
    int rbuf_idx; // Receive data storage head index
    int recv_size; // Total number of receive data
    struct sck_inf sc;
    struct sockaddr_in hostdata; // External device side data
    struct sockaddr_in EthernetAD; // Ethernet adapter module side data
    void Sockerror(int); // Error handling function

    unsigned long ulCmdArg; // Non-blocking mode setting flag

    sc.my_addr.s_addr = htonl(INADDR_ANY); // External device's IP address
    sc.my_port = htons(0); // External device's port number
    sc.aj_addr.s_addr = inet_addr("192.168.3.30"); // Ethernet adapter module's IP address(C0A8031Eh)
    sc.aj_port = htons(0x2000); // Ethernet adapter module's port number

    Closeflag = FLAG_OFF; // Connection end flag off

    nErrorStatus = WSASStartup(wVersionRequested, &wsaData); // Winsock initial processing

    if(nErrorStatus != SOCK_OK) {
        Sockerror(ERROR_INITIAL); // Error handling
        return (SOCK_NG);
    }

    printf("Winsock Version is %1d.%1d\n", HIBYTE(wsaData.wVersion), LOBYTE(wsaData.wVersion));
    printf("EthernetAD_test Start\n\n");

    socketno = socket(AF_INET, SOCK_STREAM, 0); // Creating TCP/IP socket

    if(socketno == INVALID_SOCKET) {
        Sockerror(ERROR_SOCKET); // Error handling

        return (SOCK_NG);
    }
}

```

```

hostdata.sin_family = AF_INET;
hostdata.sin_port = sc.my_port;
hostdata.sin_addr.s_addr = sc.my_addr.s_addr;

if(bind(socketno, (LPSOCKADDR)&hostdata, sizeof(hostdata)) != SOCK_OK) { // Bind

    Sockerror(ERROR_BIND); // Error handling

    return (SOCK_NG);

}

EthernetAD.sin_family = AF_INET;
EthernetAD.sin_port = sc.aj_port;
EthernetAD.sin_addr.s_addr = sc.aj_addr.s_addr;

if(connect(socketno, (LPSOCKADDR)&EthernetAD, sizeof(EthernetAD)) != SOCK_OK) {
    // Connect (Active open)
    Sockerror(ERROR_CONNECT); // Error handling

    return (SOCK_NG);

}

Closeflag = FLAG_ON; // Connection end flag on
// Make non-blocking mode active.

ulCmdArg = 1;

ioctlsocket(socketno, FIONBIO, &ulCmdArg); // Set to non-blocking mode

k = 1;

while (k) {

    printf("For the Read command, enter 1.\n");
    printf("For the Write command, enter 2.\n");
    printf("For ending, enter a value other than 1 and 2.\n");
    printf(">");

    scanf_s("%d", &j);

    switch (j) {

    case 1:

        //Creates a frame requesting for reading RY0000 to RY001F devices (3E frame)
        s_buf[0] = 0x50; // Setting subheader
        s_buf[1] = 0x00;
        s_buf[2] = 0x00; // Setting network number
        s_buf[3] = 0xff; // Setting station number
        s_buf[4] = 0xff; // Setting request destination module I/O number
        s_buf[5] = 0x03;
        s_buf[6] = 0x00; // Setting request destination module station number
        s_buf[7] = 0x0c; // Setting request data length (12 bytes)
        s_buf[8] = 0x00;
        s_buf[9] = 0x10; // Setting CPU monitoring timer
        s_buf[10] = 0x00;
        s_buf[11] = 0x01; // Setting command (batch read of word data)
        s_buf[12] = 0x04;
        s_buf[13] = 0x00; // Setting subcommand
        s_buf[14] = 0x00;
        s_buf[15] = 0x00; // Setting device number 000000
        s_buf[16] = 0x00;
        s_buf[17] = 0x00;
        s_buf[18] = 0x9d; // Setting device code (Y)
        s_buf[19] = 0x02; // Setting device points (2 words)
        s_buf[20] = 0x00;

```

```

if(send(socketno, (char *)s_buf, SEND_REQ_2, 0) == SOCKET_ERROR) {
    // Data sending
    Sockerror(ERROR_SEND); // Error handling

    return (SOCK_NG);
}

// Receiving data with the size checked
rbuf_idx = 0; // Initializes the head index of the receive data storage
recv_size = 0; // Initializes the number of receive data

while(1) {
    length = recv(socketno, (char *)&r_buf[rbuf_idx], (BUF_SIZE - rbuf_idx), 0);
    // Receiving response data
    if(length == 0) { // Was the connection cut off?

        Sockerror(ERROR_RECIEVE); // Error handling

        return (SOCK_NG);
    }

    if(length == SOCKET_ERROR) {

        nErrorStatus = WSAGetLastError();

        if(nErrorStatus != WSAEWOULDBLOCK) {

            Sockerror(ERROR_RECIEVE); // Error handling

            return (SOCK_NG);
        } else {

            continue; // Repeat until data are received.
        }
    }
    else {
        rbuf_idx += length; // Updates the receive data storage location.
        recv_size += length; // Updates the number of receive data.
        if(recv_size >= RECV_ANS_2) // Received all response messages?
            break; // Stops the repetition as they were received.
    }
}

printf("\nRY read completed\n");

//Read value display
for (i = 0; i < 2; i++) {

    disp[0] = r_buf[11+(i*2)];
    disp[1] = r_buf[12+(i*2)];
    printf("RY00%d0 to RY00%dF read value: %4X\n", i, i, *(USHORT*)&disp);
}

printf("\n\n");

break;

```

case 2:

```

// Creates a frame requesting for writing to RWr0 and RWr1 devices (3E frame)
s_buf[0] = 0x50; // Setting subheader
s_buf[1] = 0x00;
s_buf[2] = 0x00; // Setting network number
s_buf[3] = 0xff; // Setting station number
s_buf[4] = 0xff; // Setting request destination module I/O number
s_buf[5] = 0x03;
s_buf[6] = 0x00; // Setting request destination module station number
s_buf[7] = 0x10; // Setting request data length (16 bytes)
s_buf[8] = 0x00;
s_buf[9] = 0x10; // Setting CPU monitoring timer
s_buf[10] = 0x00;
s_buf[11] = 0x01; // Setting command (batch write of word data)
s_buf[12] = 0x14;
s_buf[13] = 0x00; // Setting subcommand
s_buf[14] = 0x00;
s_buf[15] = 0x00; // Setting device number 001000
s_buf[16] = 0x10;
s_buf[17] = 0x00;
s_buf[18] = 0xb4; // Setting device code (W)
s_buf[19] = 0x02; // Setting device points (2 words)
s_buf[20] = 0x00;
s_buf[21] = 0x34; // Setting write data
s_buf[22] = 0x12;
s_buf[23] = 0x78;
s_buf[24] = 0x56;

if(send(socketno, (char *)s_buf, SEND_REQ_1, 0) == SOCKET_ERROR) {
    // Data sending
    Sockerror(ERROR_SEND); // Error handling

    return (SOCK_NG);
}

// Receiving data with the size checked
rbuf_idx = 0; // Initializes the head index of the receive data storage.
recv_size = 0; // Initializes the number of receive data.

while(1) {
    length = recv(socketno, (char *)&r_buf[rbuf_idx], (BUF_SIZE - rbuf_idx), 0);
    // Receiving response data
    if(length == 0) { // Was the connection cut off?

        Sockerror(ERROR_RECIEVE); // Error handling

        return (SOCK_NG);
    }

    if(length == SOCKET_ERROR) {

        nErrorStatus = WSAGetLastError();

        if(nErrorStatus != WSAEWOULDBLOCK) {

            Sockerror(ERROR_RECIEVE); // Error handling

            return (SOCK_NG);
        } else {

            continue; // Repeat until data are received.
        }
    }
} else {
    rbuf_idx += length; // Updates the receive data storage location.
    recv_size += length; // Updates the number of received data.
    if(recv_size >= RECV_ANS_1) // Received all response messages?
        break; // Stops the repetition as they were received.
}
}

```

```

printf("\nRWr write completed\n");

//Write value display
for (i = 0; i < 2; i++) {

    disp[0] = s_buf[21+(i*2)];
    disp[1] = s_buf[22+(i*2)];
    printf("RWr000%d written value: %4X\n", i, *(USHORT*)&disp);
}

printf("\n\n");

break;

default:

    k = 0;

    break;

}

}

if(shutdown(socketno, 2) != SOCK_OK) { // Send/receive disabled
    Sockerror(ERROR_SHUTDOWN); // Error handling
    return (SOCK_NG);
}

if(closesocket(socketno) != SOCK_OK) { // Close processing
    Sockerror(ERROR_CLOSE); // Error handling
    return (SOCK_NG);
}

Closeflag = FLAG_OFF; // Connection end flag off
WSACleanup(); // Winsock DLL freed
printf("\nEthernetAD_test End.\n\nCompleted.\n");
printf("Exiting the program. Press any key.\n");
Dmykeyin = getchar(); // Waiting for key input

return (SOCK_OK);
}

```

```

void Sockerror(int error_kind) // Error handling function
{
    if (error_kind == ERROR_INITIAL){
        printf("Initial processing is abnormal.");
    }

    else{
        nErrorStatus = WSAGetLastError();

        switch(error_kind){
        case ERROR_SOCKET:
            printf("Failed to create the socket.");
            break;

        case ERROR_BIND:
            printf("Failed to bind.");
            break;

        case ERROR_CONNECT:
            printf("Failed to establish the connection.");
            break;

        case ERROR_SEND:
            printf("Failed to send.");
            break;

        case ERROR_RECIEVE:
            printf("Failed to receive.");
            break;

        case ERROR_SHUTDOWN:
            printf("Failed to shut it down.");
            break;

        case ERROR_CLOSE:
            printf("Failed to properly close it.");
            break;

        }
    }
    printf("Error code is %d.\n", nErrorStatus);

    if (Closeflag == FLAG_ON){
        nErrorStatus = shutdown(socketno, 2); // Shutdown processing
        nErrorStatus = closesocket(socketno); // Close processing
        Closeflag = FLAG_OFF; // Connection end flag off
    }

    printf("Exiting the program. Press any key.\n");
    Dmykeyin = getchar(); // Waiting for key input
    WSACleanup(); // Winsock DLL freed

    return;
}

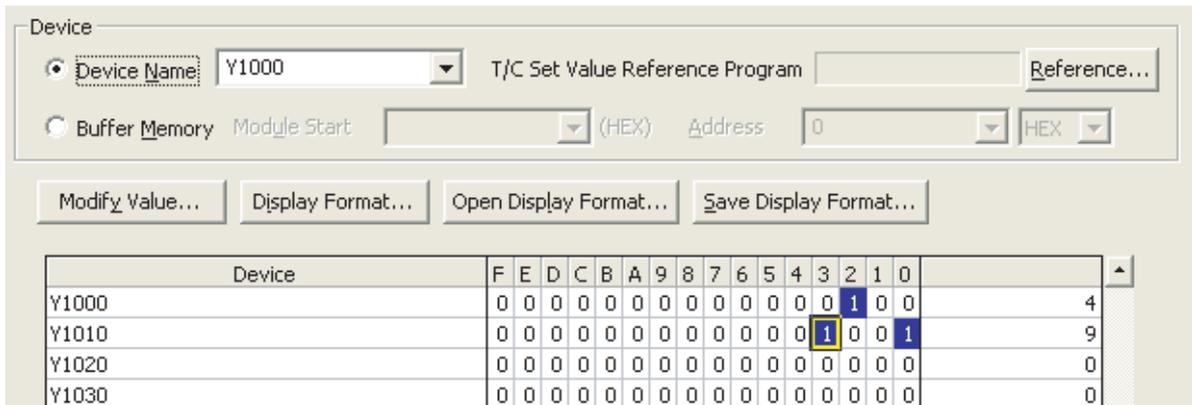
```

(3) Executing the program

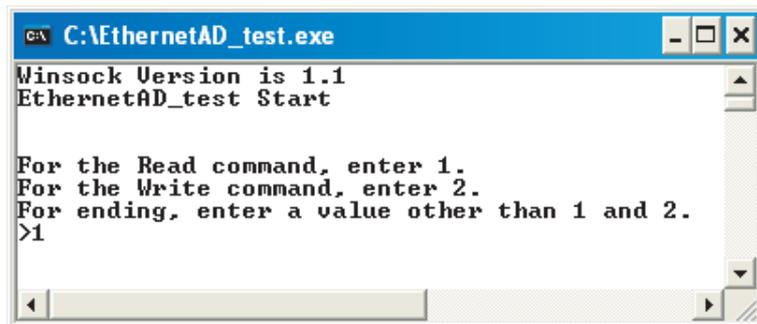
(a) Sending the Read command

1. On the "Device/Buffer Memory Batch Monitor" window of GX Works2, set values for Y1000 to Y100F and Y1010 to Y101F of the CPU module as shown below.

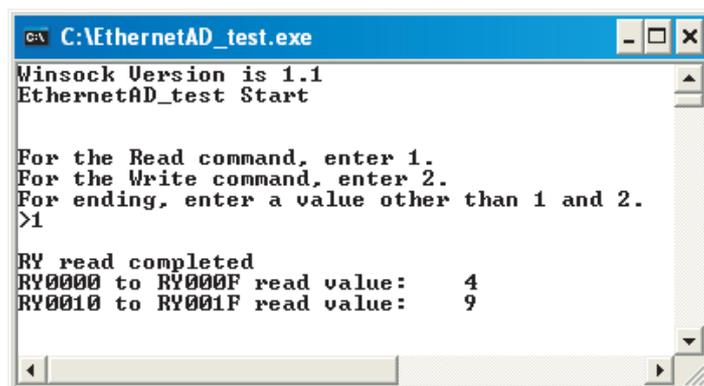
 [Online] ⇨ [Monitor] ⇨ [Device/Buffer Memory Batch]



2. Run the executable file at the command prompt.
In the following window, enter 1.

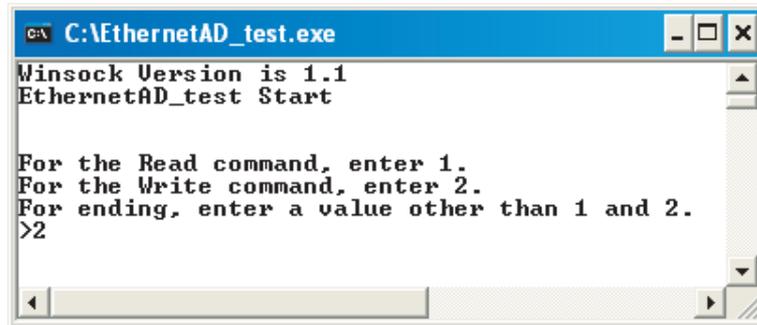


3. The following window message is displayed upon successful completion.
If not, take action according to the troubleshooting instructions. ( Page 139, CHAPTER 9)



(b) Sending the Write command

1. Run the executable file at the command prompt. In the following window, enter 2.
By the Write (command: 1401), a program of writing 2-word data (1234_H, 5678_H) to RWr0000 to RWr0001 (W1000 to W1001) will be executed.



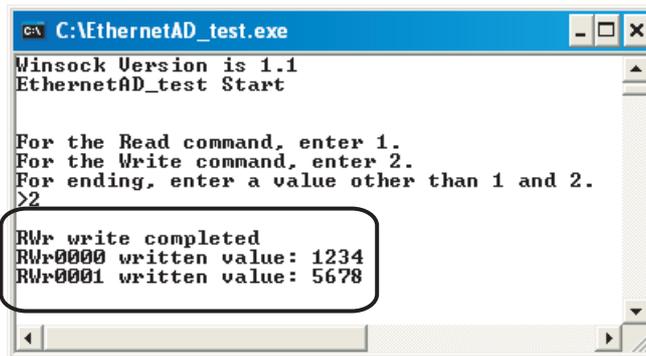
```

C:\EthernetAD_test.exe
Winsock Version is 1.1
EthernetAD_test Start

For the Read command, enter 1.
For the Write command, enter 2.
For ending, enter a value other than 1 and 2.
>2

```

2. The following is displayed on the window.
If not, take action according to the troubleshooting instructions. (☞ Page 139, CHAPTER 9)



```

C:\EthernetAD_test.exe
Winsock Version is 1.1
EthernetAD_test Start

For the Read command, enter 1.
For the Write command, enter 2.
For ending, enter a value other than 1 and 2.
>2
RWr write completed
RWr0000 written value: 1234
RWr0001 written value: 5678

```

3. Activate "Device/Buffer Memory Batch Monitor" in GX Works2.

☞ [Online] ⇄ [Monitor] ⇄ [Device/Buffer Memory Batch]

4. If 1234_H and 5678_H were stored in W1000 and W1001 of the CPU module, it means successful completion. If not, take action according to the troubleshooting instructions. (☞ Page 139, CHAPTER 9)

Device

Device Name: W1000 T/C Set Value Reference Program: Reference...

Buffer Memory: Module Start: (HEX) Address: DEC

Modify Value... Display Format... Open Display Format... Save Display Format...

Device	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	
W1000	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	0	1234
W1001	0	1	0	1	0	1	1	0	0	1	1	1	0	0	0	5678	
W1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000	
W1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000	
W1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000	
W1005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000	
W1006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000	
W1007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000	
W1008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000	
W1009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000	
W100A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000	

7.2 Communication Using the On-demand Function

This section provides an example of where a send request is issued from the CPU module to the Ethernet adapter module and data is sent to the external device.*1

*1 Check the corresponding serial No. and software version. (☞ Page 233, Appendix 10)

Point

To perform the on-demand function, use the REMFR and REMTO instructions.

The on-demand function is supported by the master/local module with a serial number (first five digits) of "12072" or later.

7.2.1 System configuration

A communication example using the on-demand function is explained with the same system configuration as SLMP communication and cyclic transmission. (☞ Page 66, Section 7.1)

7.2.2 Specifications of send data using the on-demand function

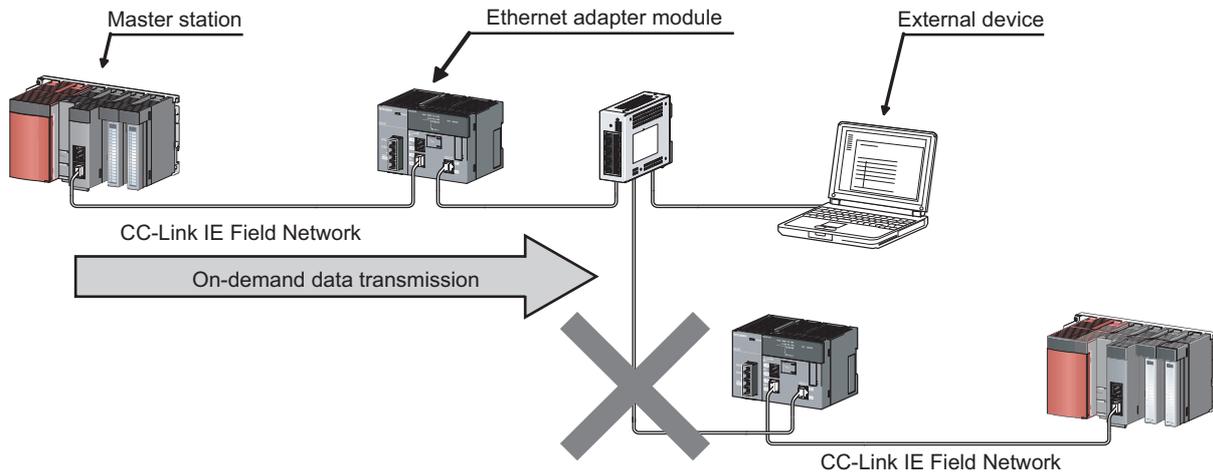
The following table lists the specifications of items such as the number of on-demand data simultaneously used and communication data code.

Item	Specification
Number of channels simultaneously used	Up to 4 channels
Send data length	Up to 1920 bytes (up to 960 words)
Protocol	TCP, UDP
Available connection	<ul style="list-style-type: none"> • Connection for users (TCP only) • Auto-open UDP port
Frame format	SLMP
Communication data code setting	<ul style="list-style-type: none"> • Binary code communication • ASCII code communication

7.2.3 Applicable range of on-demand data

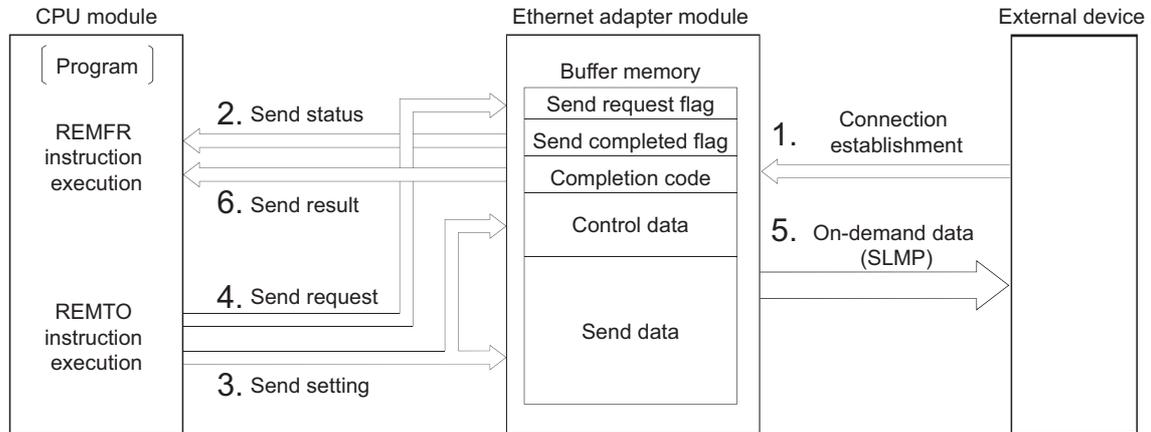
The on-demand function can send data only to the external devices on the same network (Ethernet) as the Ethernet adapter module. In addition, data can be simultaneously sent to all the external devices on Ethernet where the Ethernet adapter module is also connected (broadcast communications).

On-demand data cannot be sent to other stations via other MELSEC products (such as Ethernet adapter modules) on the same network (Ethernet) as the Ethernet adapter module.

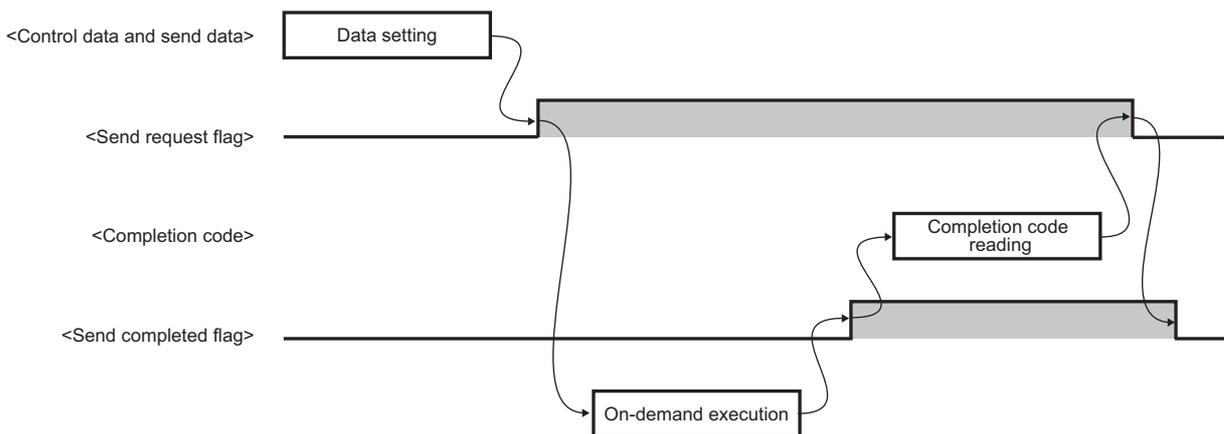


7.2.4 How to send on-demand data

On-demand data is sent to an external device after the buffer memory in the Ethernet adapter module receives/sends the data from/to the CPU module using the REMFR and REMTO instructions. The Ethernet adapter module converts the data sent to the buffer memory into SLMP and sends it to the external device.



1. Establish connection between an external device and the Ethernet adapter module.
2. Check that the Ethernet adapter module is in a state where on-demand data can be sent.
3. Store control data and send data in the buffer memory in the Ethernet adapter module.
4. Turn on Send request flag.
5. On-demand data is sent from the Ethernet adapter module to the external device.
6. Check the result of the on-demand data sent from the Ethernet adapter module to the external device.



Point

Turn on Send request flag after setting all the setting data (buffer memory address: 5635 to 6655 (1603_H to 19FF_H)). When turning on Send request flag, complete the REMTO instruction that sets the setting data before executing the REMTO instruction that turns on Send request flag. Do not set the setting data and turn on Send request flag at the same time using one REMTO instruction.

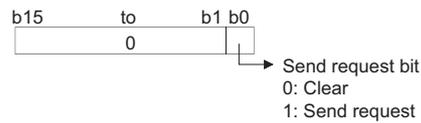
7.2.5 Buffer memories used for the on-demand function

This section describes the buffer memories used for channel 1 in the on-demand function.

For channels 2 to 4, store information in the same way as channel 1. (☞ Page 37, Section 3.4)

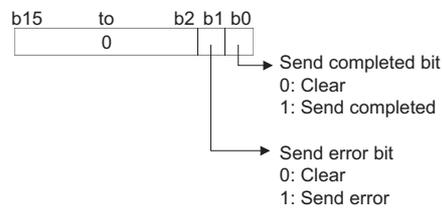
(1) Send request flag (buffer memory address: 5632 (1600H))

This flag requests on-demand data to be sent from the Ethernet adapter module to an external device.



(2) Send completed flag (buffer memory address: 5633 (1601H))

This flag checks if on-demand data has been sent from the Ethernet adapter module to an external device.*1



*1 The on-demand function in the Ethernet adapter module does not check whether an external device has received on-demand data because Send completed flag turns on when the data has been sent. Even when the protocol is TCP, Send completed flag turns on before an ACK response is received from the external device.

(3) Completion code (buffer memory address: 5634 (1602H))

The Ethernet adapter module stores the result of the on-demand data sent to an external device (error code).

(☞ Page 157, Section 9.5)

(4) Setting data (buffer memory address: 5635 to 6655 (1603_H to 19FF_H))

On-demand data can be sent using the connection for users and auto-open UDP port in the Ethernet adapter module.

(a) On-demand data sending using the connection for users (TCP only)

Send on-demand data using the connection of the connection setting in the configuration tool.

Buffer memory address		Name	Default value	Read/Write	Reference			
(Decimal)	(Hexadecimal)							
+0	+0 _H	Setting data	Control data	0H	Write	Page 94, Section 7.2.5 (5)		
+1	+1 _H						Connection No. (setting value: 1 to 32)	
+2	+2 _H						Frame setting format	
+3 to +6	+3 _H to +6 _H						Serial No.	
+7	+7 _H						System area	
+8	+8 _H						Send data format	
							Send data length	
+9 to +968	+9 _H to +3C8 _H						Send data	
+969 to +1020	+3C9 _H to +3FC _H						System area	—

Point

On-demand data is sent using TCP only when the protocol setting for the connection for users is TCP and TCP connection is being established with an external device.

If the protocol setting is UDP or TCP connection is not established with an external device, a send error occurs.

(b) On-demand data sending using the auto-open UDP port

Send on-demand data using the auto-open UDP port in the Ethernet adapter module.

Using UDP enables data to be sent to an arbitrary external device set for the setting data.

Buffer memory address		Name	Default value	Read/Write	Reference			
(Decimal)	(Hexadecimal)							
+0	+0 _H	Setting data	Control data	0H	Write	Page 94, Section 7.2.5 (5)		
+1	+1 _H						Connection No. (setting value: fixed to 0)	
+2	+2 _H						Frame setting format	
+3	+3 _H						Serial No.	
+4	+4 _H						Communication data code specification	
+5	+5 _H						Destination IP address	Lower Upper
+6	+6 _H						Destination port No.	
+7	+7 _H						Send data format	
+8	+8 _H						Send data length	
+9 to +968	+9 _H to +3C8 _H						Send data	
+969 to +1020	+3C9 _H to +3FC _H	System area	—					

(5) Setting data

(a) Connection No.

Set the connection No. where on-demand data is sent from the Ethernet adapter module.

Connection	Setting value
Connection for users*1	1 to 32
Auto-open UDP port	0

If any number other than those described above is set, a connection No. error (error code: 420_H) occurs.

 Page 157, Section 9.5)

*1 This corresponds to the connection No. in the connection setting in the configuration tool.

 Page 191, Section 10.3.3 (1))

(b) Frame setting format

Specify whether a serial No. is added to on-demand data.

Frame setting format	Setting value
No serial No. added	0 _H
Serial No. added	1 _H

If any number other than those described above is set, a frame setting format error (error code: 421_H) occurs.

 Page 157, Section 9.5)

(c) Serial No.

Set the serial No. added to the subheader of on-demand data.

The serial No. is effective only when the frame setting format is set to the serial No. added (1_H).

When the communication data code set in the connection setting is an ASCII code, the setting value is converted from the binary data to the ASCII code and sent.

(d) Communication data code specification (when using the auto-open UDP port)

Set the communication data code required when using the auto-open UDP port.

(When using TCP, follow the connection setting in the configuration tool.)

ASCII conversion specification	Setting value
Binary code communication	0 _H
ASCII code communication	1 _H

If any number other than those described above is set, a communication data code specification error (error code: 422_H) occurs.  Page 157, Section 9.5)

(e) Destination IP address (when using the auto-open UDP port)

Set the IP address of the external device where on-demand data is sent from the Ethernet adapter module. The effective setting values are from 0.0.0.1 to 255.255.255.255.

When 255.255.255.255 is set, on-demand data is sent to all the external devices (all the hosts) with the same network address (broadcast communications).

If any number other than those described above is set, a destination IP address error (error code: 423_H) occurs. (☞ Page 157, Section 9.5)

Ex. When the IP address is 192.168.3.1:

	b15 to b8	b7 to b0
+4	3 (03H)	1 (01H)

	b15 to b8	b7 to b0
+5	192 (C0H)	168 (A8H)

Point

- To perform broadcast communications, use the same network address and port number for all the external devices to receive on-demand data.
- When using broadcast communications, set 255.255.255.0 for the subnet mask pattern of the Ethernet adapter module (Ethernet part).

(f) Destination port No. (when using the auto-open UDP port)

Set the port No. of the external device where on-demand data is sent from the Ethernet adapter module. The effective setting values are from 1H to FFFFH.

If any number other than those described above is set, a destination port No. error (error code: 424_H) occurs. (☞ Page 157, Section 9.5)

(g) Send data format/send data length

Specify the send data format and send data length.

Send data format			Send data length
Setting value	Unit specification	Data code	Setting value
0 _H	Byte	Binary code	0 to 1920
1 _H		ASCII code	
2 _H	Word	Binary code	0 to 960
3 _H		ASCII code	

If any number other than those described above is set, a send data format error (error code: 425_H) or send data length error (error code: 426_H) occurs. (☞ Page 157, Section 9.5)

(h) Send data (buffer memory address: 5644 to 6603 (160CH to 19CBH))

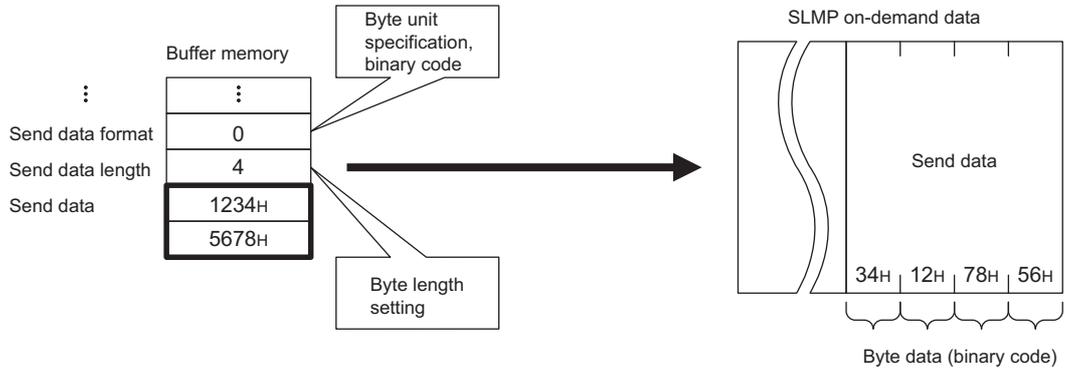
Set the data to be sent from the Ethernet adapter module to an external device.

The set data is sent to the external device based on the send data format of the control data.

Send data by send data format are as follows:

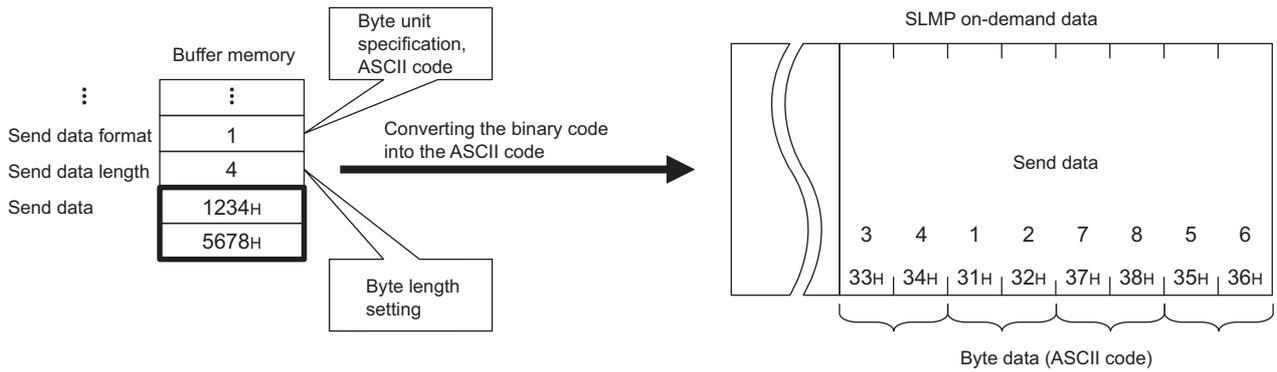
- When a send data format is 0_H (byte unit and binary code selected):

This send data is used to send binary data or character strings.

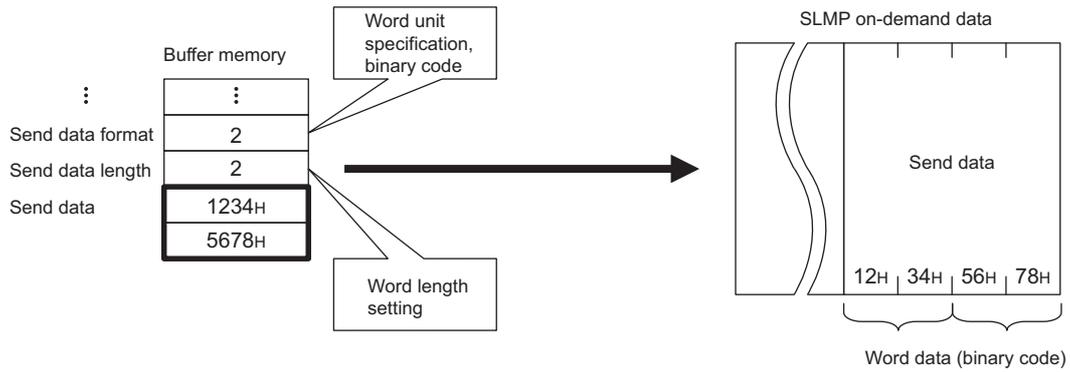


- When a send data format is 1_H (byte unit and ASCII code selected):

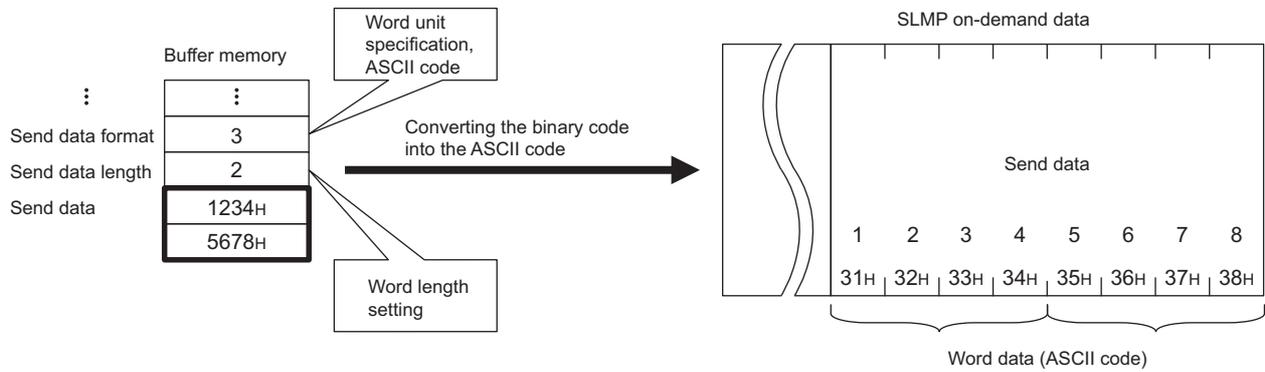
This send data is used to send ASCII data.



- When a send data format is 2_H (word unit and binary code selected):
This send data is used to send a device value using the binary code.



- When a send data format is 3_H (word unit and ASCII code selected):
This send data is used to send a device value using the ASCII code.



7.2.6 On-demand data format

This section explains about on-demand data sent from the Ethernet adapter module to an external device.

(1) On-demand data

The following illustration shows the on-demand format.

Header	Subheader	Network number	Station number	Request destination module I/O number	For future extension	Request data length	Monitoring timer	Command	Subcommand	Send data
--------	-----------	----------------	----------------	---------------------------------------	----------------------	---------------------	------------------	---------	------------	-----------

(a) Subheader

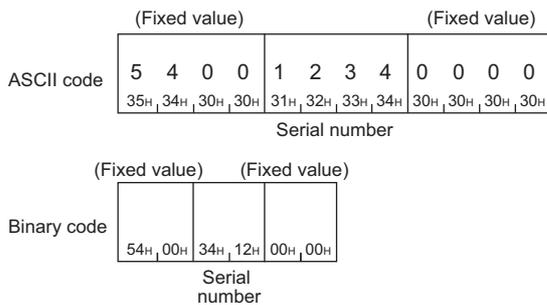
Subheaders vary depending on whether a serial No. is added or not added to a request message.

- Set whether a serial No. is added in the frame setting format of control data.
- Set the serial No. of control data (☞ Page 94, Section 7.2.5 (5))

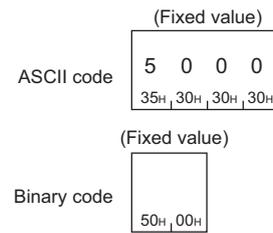
For applications and precautions of serial Nos., refer to the following:

📖 SLMP Reference Manual

When adding a serial No.



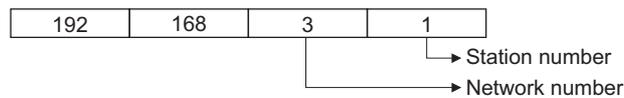
When not adding a serial No.



(b) Network No. and station No.

The third octet of the external device IP address is stored in the network No.

The fourth octet of the external device IP address is stored in the station No.



When 255.255.255.255 (broadcast communications) is selected for the IP address of the destination, the third and fourth octets are as follows:

- The third octet: The third octet of the IP address of the Ethernet adapter module (Ethernet part)
- The fourth octet: 255 (FF_H)

(c) Request destination module I/O No., request data length, monitoring timer, command, and subcommand

The following values are stored for each item:

Setting item	Setting value
Request destination module I/O No.	03FF _H
Request data length	The data length from the monitoring timer to the send data is stored in 4-digit hexadecimal format.
Monitoring timer	0000 _H
Command	2101 _H
Subcommand	0000 _H

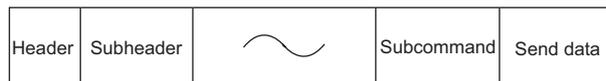
(d) Send data

The value stored in the buffer memory in the Ethernet adapter module is stored.

(☞ Page 96, Section 7.2.5 (5) (h))

(2) Precautions when setting on-demand data

For the send data formats (binary code/ASCII code) of a message at the time of sending on-demand data, setting locations differ between the subheader to the subcommand and the send data.

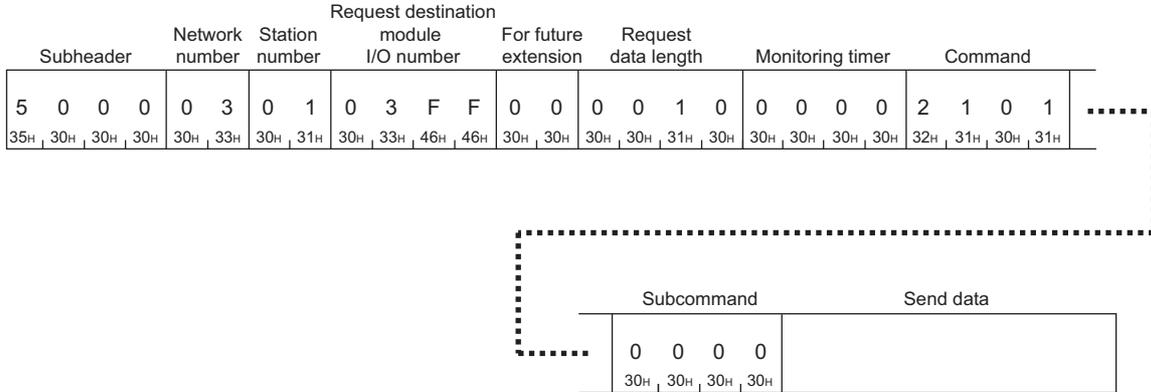


Protocol	Subheader to subcommand	Send data
Connection for users (TCP)	Setting in the configuration tool (☞ Page 191, Section 10.3.3 (1))	Setting in the buffer memory
Auto-open UDP port	Setting in the buffer memory (☞ Page 93, Section 7.2.5 (4) (b))	(☞ Page 96, Section 7.2.5 (5) (h))

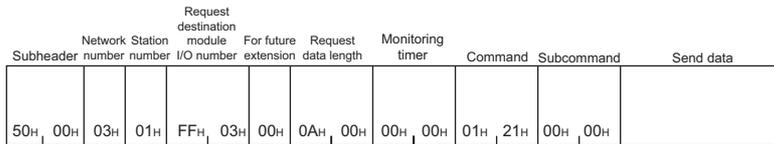
(3) Example of on-demand data

(a) On-demand data format in SLMP (no serial No.)

- ASCII data

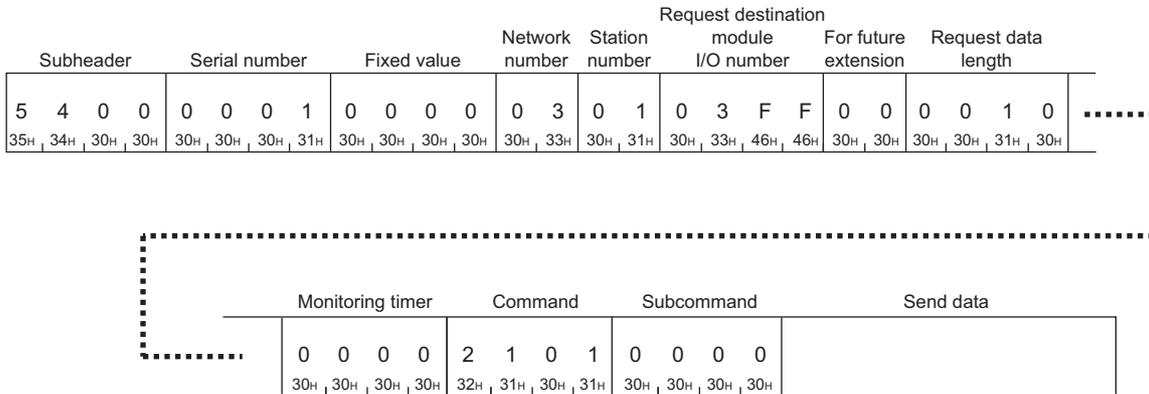


- Binary data

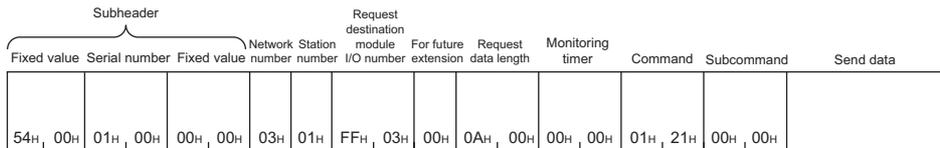


(b) On-demand data format in SLMP (serial No. added)

- ASCII data



- Binary data



7.2.7 Example of on-demand data sending

This section explains how to send on-demand data and provides a program example.

(1) How to send data

Follow the instructions below to send on-demand data.

(a) Ethernet adapter module

1. Connect the Ethernet adapter module to CC-Link IE Field Network and Ethernet. (☞ Page 66, Section 7.1)
Before connecting to Ethernet, establish connection between an external device and the Ethernet adapter module.

(b) CPU module (for channel 1)

1. Write parameters and a program to the CPU module and reset the CPU module.
(☞ Page 102, Section 7.2.7 (2))
2. Run the CPU module.
3. Read Send completed flag (buffer memory address: 5633 (1601H)) in the Ethernet adapter module using the REMFR instruction.
When the 0th bit or 1st bit of Send completed flag is 1 (ON), set the 0th bit of Send request flag (buffer memory address: 5632 (1600_H)) to 0 (OFF).
4. Set Control data (buffer memory address: 5635 to 5643 (1603_H to 160B_H)) and Send data (buffer memory address: 5644 to 6603 (160C_H to 19CB_H)) in the Ethernet adapter module using the REMTO instruction.
5. Set Send request bit of Send request flag in the Ethernet adapter module to 1 (ON) using the REMTO instruction.
6. On-demand data is sent.
7. Read Send completed flag and Completion code (buffer memory address: 5634 (1602_H)) in the Ethernet adapter module using the REMFR instruction.
If the 1st bit of Send completed flag is 1 (ON), check Completion code (error code) and remove the error cause. (☞ Page 157, Section 9.5)
8. Set Send request flag and Send completed flag to 0 (OFF).

(c) External device

1. Receive on-demand data.
2. Find whether the received data is on-demand data or data received using a command.
When the command No. in the message is 2101, the data is on-demand data.
3. Process the data.

Point

For details on the buffer memories used for the on-demand function, refer to ☞ Page 92, Section 7.2.5.

(2) Program example

(a) On-demand data setting

Item	Specification
Number of channels simultaneously used	1 channel
Send data length	4 bytes
Protocol	TCP
Available connection	Connection for users (connection No.1)
Frame format	SLMP (serial No. added)
Communication data code setting	ASCII code communication

(b) Devices used for a program

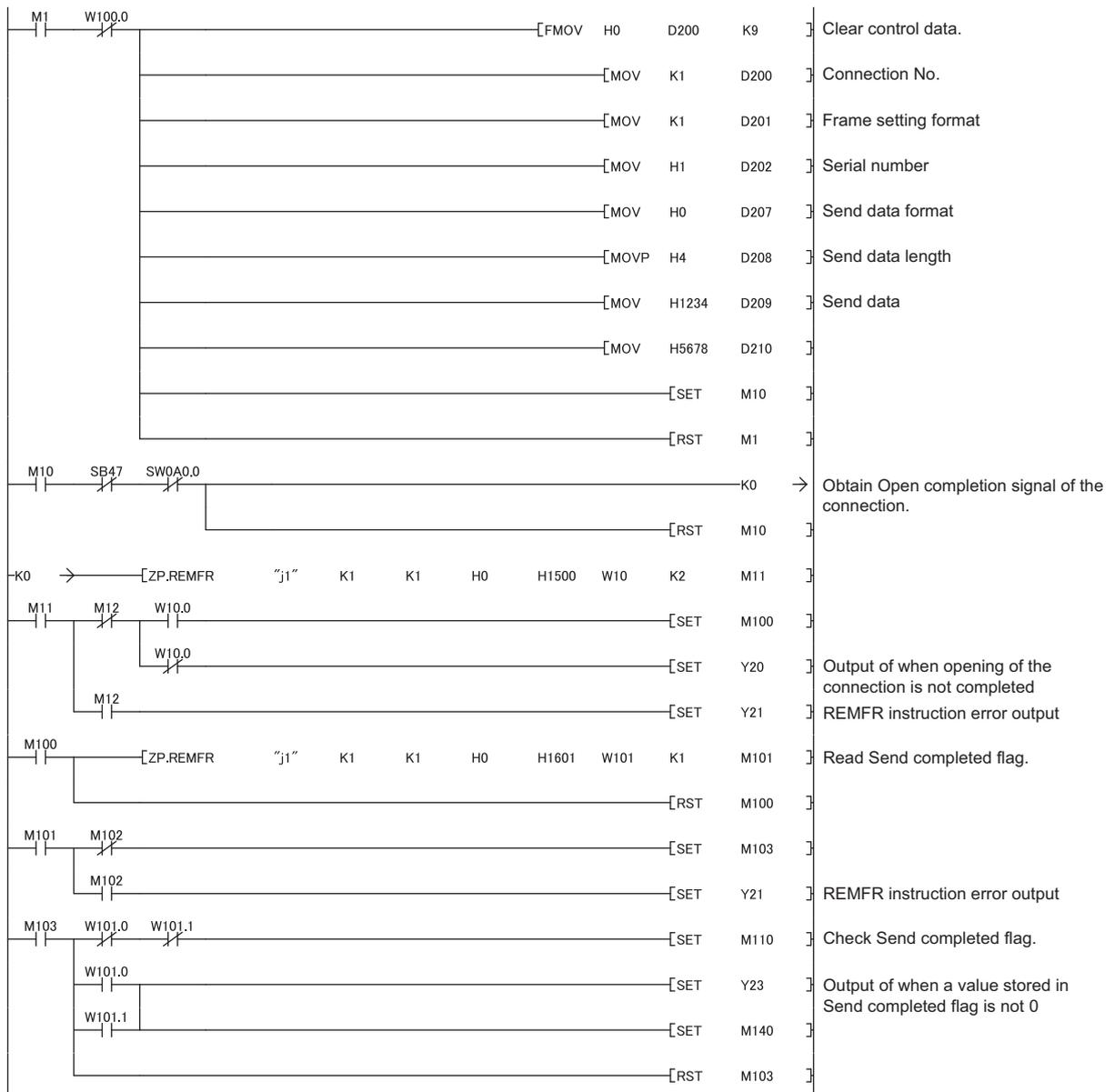
Device	Description
M1	Start-up contact
M10	Device of control data and send data setting completed
M11, M12	Device of the REMFR instruction completed (Open completion signal of the connection obtained)
M100	Device of connection open completion check completed
M101, M102	Device of the REMFR instruction completed (Send completed flag reading)
M103	Device of Send completed flag reading completed
M110	Device of Send completed flag OFF check completed
M111, M112	Device of the REMTO instruction completed (send data setting)
M120	Device of send data setting completed
M121, M122	Device of the REMTO instruction completed (Send request flag ON)
M130	Device of Send request flag ON completed
M131, M132	Device of the REMFR instruction completed (Send completed flag and Completion code reading)
M133	Device of Send completed flag and Completion code reading completed
M140	Device of on-demand data sending completed
M141, M142	Device of the REMTO instruction completed (Send request flag OFF)
W10.0	Ethernet port connection status (connection No.1)
W100.0	Send request flag (Send request bit)
W101.0	Send completed flag (Send completed bit)
W101.1	Send completed flag (Send error bit)
W102	Completion flag
SB0047	Baton pass status of the own station
SW00A0.0	Baton pass status of each station (station No.1)
D200 to D208	Control data
D209, D210	Send data
Y20	Connection open not completed error output
Y21	REMFR instruction error output
Y22	REMTO instruction error output
Y23	Send completed flag error output
Y24	On-demand data send error output
Y2A	On-demand data send completed output

(c) On-demand data to be sent

Subheader				Serial number				Fixed value				Network number		Station number		Request destination module I/O number				For future extension		Request data length			
5	4	0	0	0	0	0	1	0	0	0	0	0	3	0	1	0	3	F	F	0	0	0	0	1	0
35H	34H	30H	30H	30H	30H	30H	31H	30H	30H	30H	30H	30H	33H	30H	31H	30H	33H	46H	46H	30H	30H	30H	30H	31H	30H

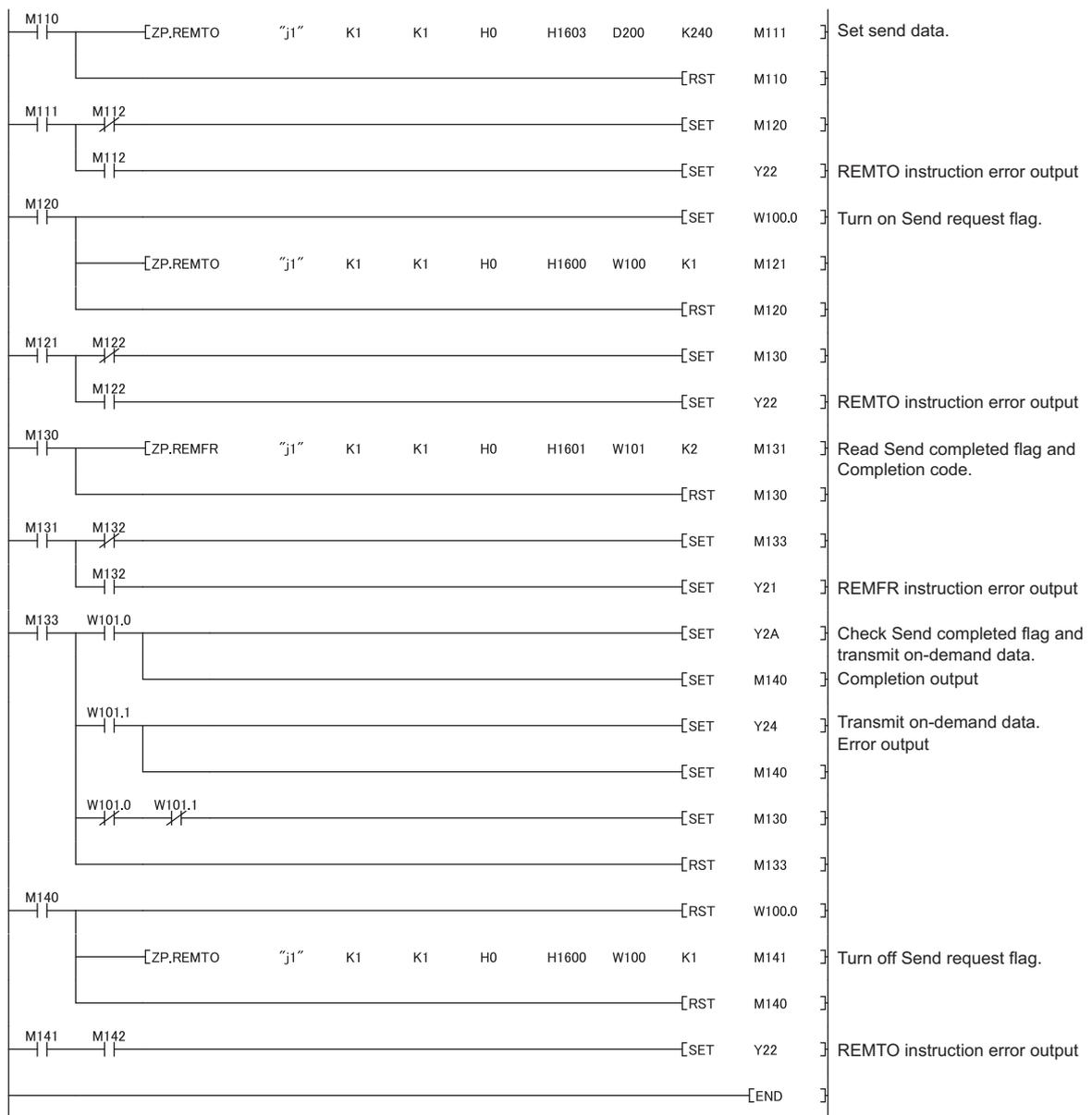
Monitoring timer				Command				Subcommand				Send data			
0	0	0	0	2	1	0	1	0	0	0	0				
30H	30H	30H	30H	32H	31H	30H	31H	30H	30H	30H	30H	34H	12H	78H	56H

(d) Program



7

7.2 Communication Using the On-demand Function
7.2.7 Example of on-demand data sending



7.3 IP Communications over CC-Link IE Field Network (IP Packet Transfer Function)

This section describes an example of communications using the specified IP address between external devices over CC-Link IE Field Network.*1

*1 Check the corresponding serial number and software version. (☞ Page 233, Appendix 10)

Point

- The data that are communicated using the IP packet transfer function are communicated separately by the following process.
 - Service process by a sequence scan of a CPU module (when communications are transferred through the CPU module)
 - Link scan on CC-Link IE Field Network

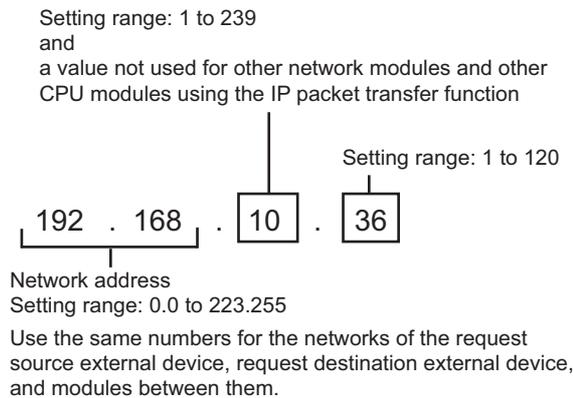
Because of this, the speed of communications using the IP packet transfer function is slower than the speed of communications with the Ethernet line. The reference speed of communication using the IP packet transfer function is described in the manual for the master/local module used. (📖 User's manual for the master/local module used)
- To perform IP communications over CC-Link IE Field Network, the CPU module and the master/local module on the communication route must support the IP packet transfer function. To check whether the CPU module and the master/local module used support the IP packet transfer function, refer to the sections listing the functions and added functions in the user's manual for those modules.
- IP communications over CC-Link IE Field Network enable communications with an external device connected to the built-in Ethernet port of a CPU module. For the applicable system configuration, IP address setting rule, and accessible range, refer to the following.
 - 📖 User's manual for the master/local module used
- Using the UDP protocol may reduce the data reliability compared to TCP, causing a problem such as data missing and changed order of data receiving. If any problem occurs, change the protocol to TCP.
- IP communications over CC-Link IE Field Network cannot transfer communications of Broadcast and Multicast. Use Unicast (identifying a single request destination) instead.

7.3.1 Deciding the IP address

This section explains how to set an IP address to perform communications over CC-Link IE Field Network.

(1) When the network addresses of the request source external device, request destination external device, and modules between them are the same

Communications can be performed with the minimum setting by setting the same network address of the IP address in the request source external device, request destination external device, and modules between them. The IP addresses of the request source external device, request destination external device, and modules between them must meet the rules below. Especially, pay attention to the setting ranges of the third and fourth octets.



Device to be set	Setting range of the IP address		
	First and second octets	Third octet	Fourth octet
External device	0.0 to 223.255 ^{*1} (Same numbers for the request source external device, request destination external device, and modules between them)	1 to 239 ^{*1} (Same number for the external device and the Ethernet adapter module (Ethernet part) connected to the external device)	1 to 120 ^{*1}
Ethernet adapter module (Ethernet part)			
Ethernet adapter module (CC-Link IE Field Network part)	Automatically set (network address of the master station) 0.0 to 223.255 ^{*1}	Automatically set (network number of the own station) 1 to 239	Automatically set (station number of the own station) • 1 to 120
Master/local module	0.0 to 223.255 ^{*1} (Same numbers for the request source external device, request destination external device, and modules between them)		Automatically set (station number of the own station) • 1 to 120 • 125 (125 is always set in the master station)
CPU module connected to the external device	0.0 to 223.255 ^{*1} (Same numbers for the request source external device, request destination external device, and modules between them)	1 to 239 ^{*1} (Same number for the external device and the CPU module)	1 to 120 ^{*1}
Universal model QCPU on the communication route (not connected to the external device)	IP address setting not required		

*1 Set the numbers according to the range supported by the external device used.
The range may not apply depending on the external device. Check the specifications of the external device used.



To transmit communications to the external device, the routing parameters are required. (👉 Page 109, Section 7.3.4 (1))

(2) When the network addresses are different

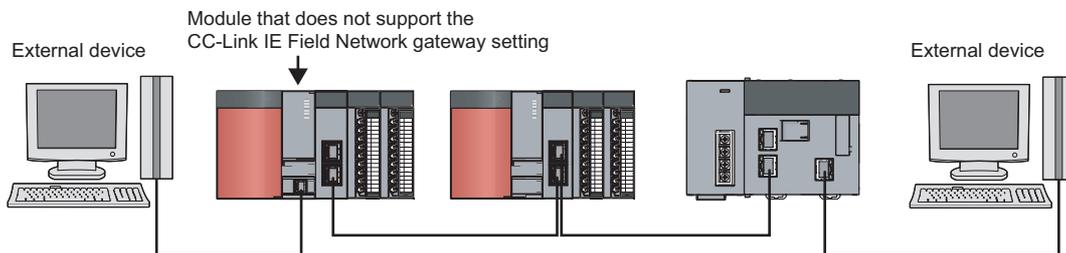
When the same network address cannot be set for the external device and CC-Link IE Field Network, decide the IP address within the ranges listed in the following table.

Device to be set	Setting range of the IP address		
	First and second octets	Third octet	Fourth octet
External device	0.0 to 223.255* ¹ (Same numbers for the external device and the Ethernet adapter module (Ethernet part) connected to the external device)	0 to 255* ¹ (Same numbers for the external device and the Ethernet adapter module (Ethernet part) connected to the external device)	1 to 254* ¹
Ethernet adapter module (Ethernet part)			
Ethernet adapter module (CC-Link IE Field Network part)	Automatically set (network address of the master station) 0.0 to 255.255	Automatically set (network number of the own station) 1 to 239	Automatically set (station number of the own station) • 1 to 120
Master/local module	0.0 to 255.255		Automatically set (station number of the own station) • 1 to 120 • 125 (125 is always set in the master station)
Universal model QCPU on the communication route (not connected to the external device)	IP address setting not required		

*1 Set the numbers according to the range supported by the external device used.
The range may not apply depending on the external device. Check the specifications of the external device used.

Point

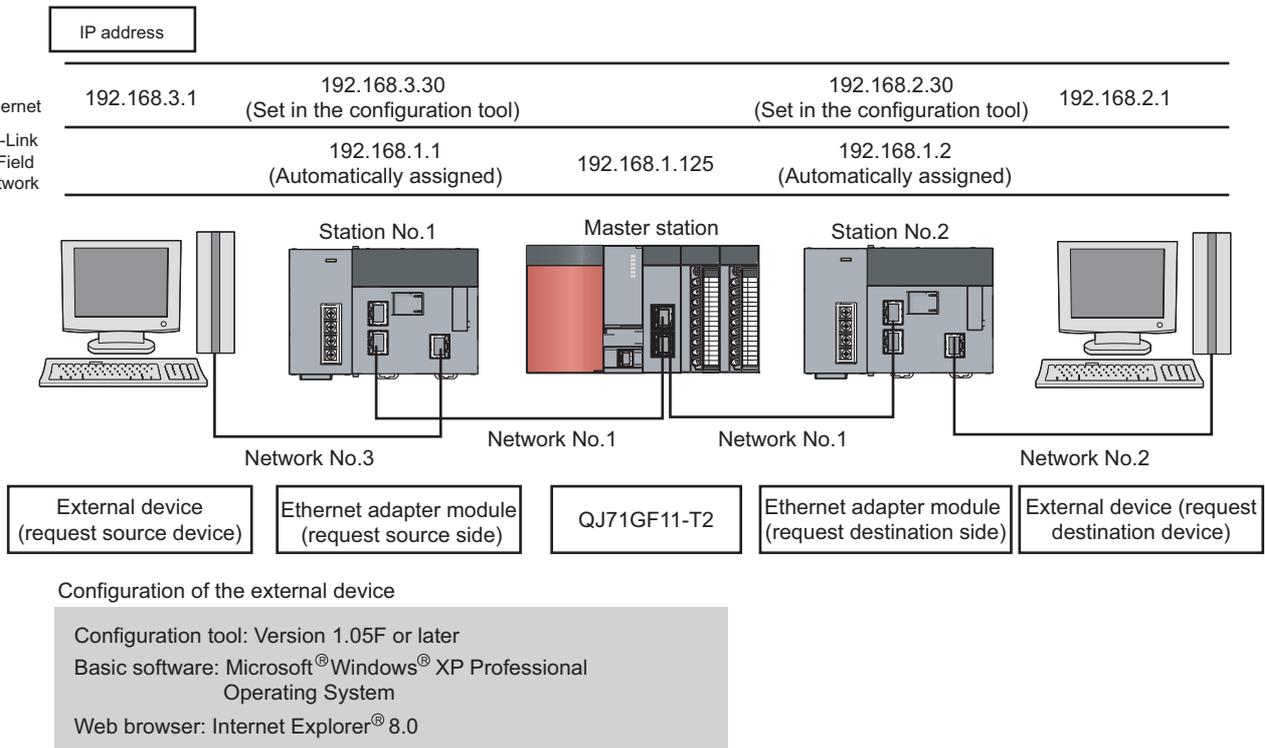
- To transmit communications to an external device having a different network address, the CC-Link IE Field Network gateway setting and the routing parameters are required. (☞ Page 124, Section 7.3.7)
- When the request source external device, request destination external device, and modules between them have the same network address, the CC-Link IE Field Network gateway setting is not required.
- To connect a request source or request destination to a module that does not support the CC-Link IE Field Network gateway setting, follow the rules described on Page 106, Section 7.3.1 (1). Even if the CC-Link IE Field Network gateway setting is configured in the Ethernet adapter module, communications cannot be performed.



7.3.2 System configuration

The following system configuration is used for explanation purpose.

On Page 108, Section 7.3.2 to Page 121, Section 7.3.6, an example of when the request source external device, request destination external device, and modules between them have the same first and second octets of the IP address is used. For an example of when the request source external device, request destination external device, and modules between them do not have the same first and second octets of the IP address, refer to Page 124, Section 7.3.7.



7.3.3 Network setting of the configuration computer

The configuration tool needs to be started on a Web browser to configure the setting in the Ethernet adapter module. To start up the configuration tool on a Web browser, configure the setting described on Page 69, Section 7.1.3 in advance.

7.3.4 Connection to CC-Link IE Field Network

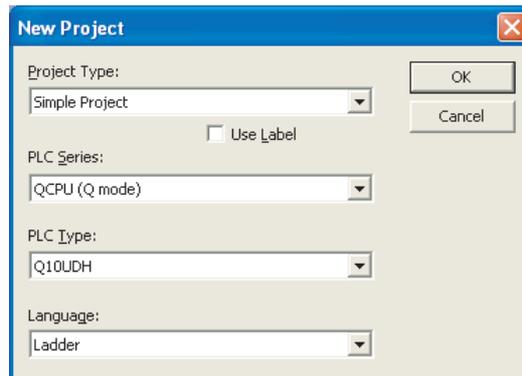
Set the parameters in the master station for IP communications over CC-Link IE Field Network.

(1) Setting in the master station

Use GX Works2 to set the parameters in the master station. Use the default settings for the parameters other than those set below.

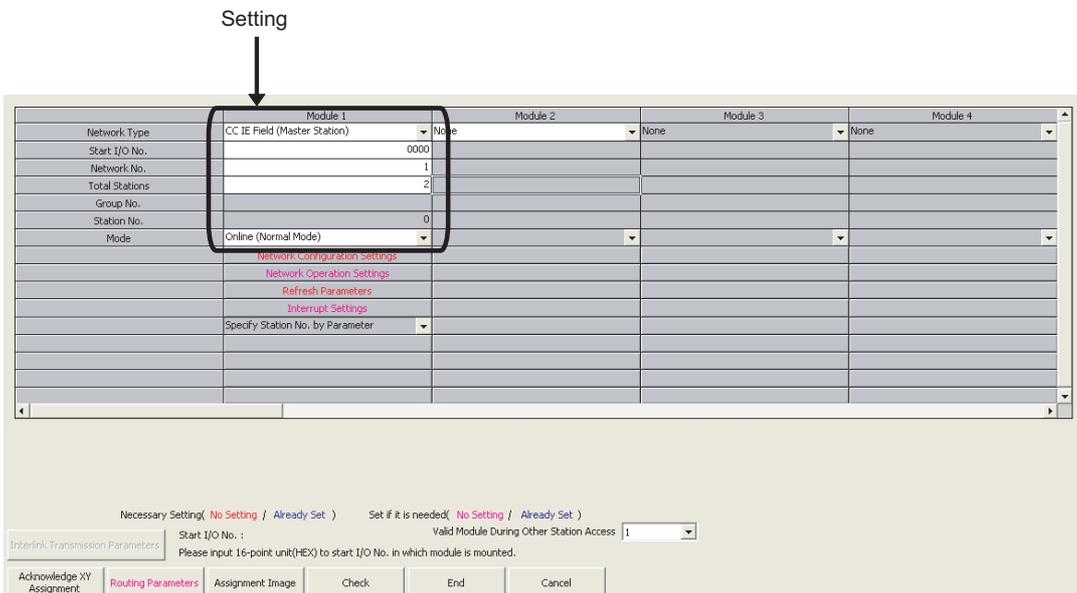
1. Create a project on GX Works2.

 [Project] ⇒ [New...]



2. Open the "Network Parameter" setting window to set the parameters as follows.

 Project window ⇒ [Parameter] ⇒ [Network Parameter] ⇒ [Ethernet/CC IE/MELSECNET]



3. Click the **Network Configuration Settings** button to set the parameters as follows. The following setting is an assignment example. (Communications using the IP packet transfer function do not affect assigned points.) Change the points according to the system configuration used.

Set up Network configuration.

Assignment Method
 Points/Start
 Start/End

The column contents for refresh device will be changed corresponding to refresh parameter. Please reopen the window after completing refresh parameter setting when changing refresh parameter.

Number of PLCs	Station No.	Station Type	RX/Ry Setting			RWw/RWr Setting		
			Points	Start	End	Points	Start	End
0	0	Master Station						
1	1	Intelligent Device Station	256	0000	00FF	128	0000	007F
2	2	Intelligent Device Station	256	0100	01FF	128	0080	00FF

4. Click the **Network Operation Settings** button to set the IP address of the master station.

Network Operation Settings

Parameter Name

Data Link Faulty Station Setting
 Turn OFF or 0 Clear Input Data (RX/Ry)
 Hold Input Data (RX/Ry)

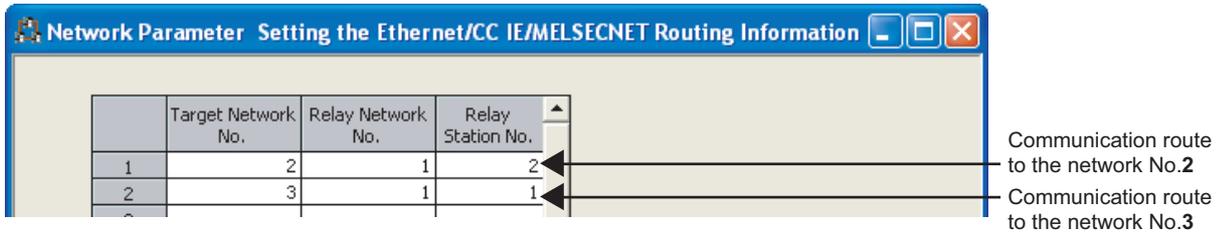
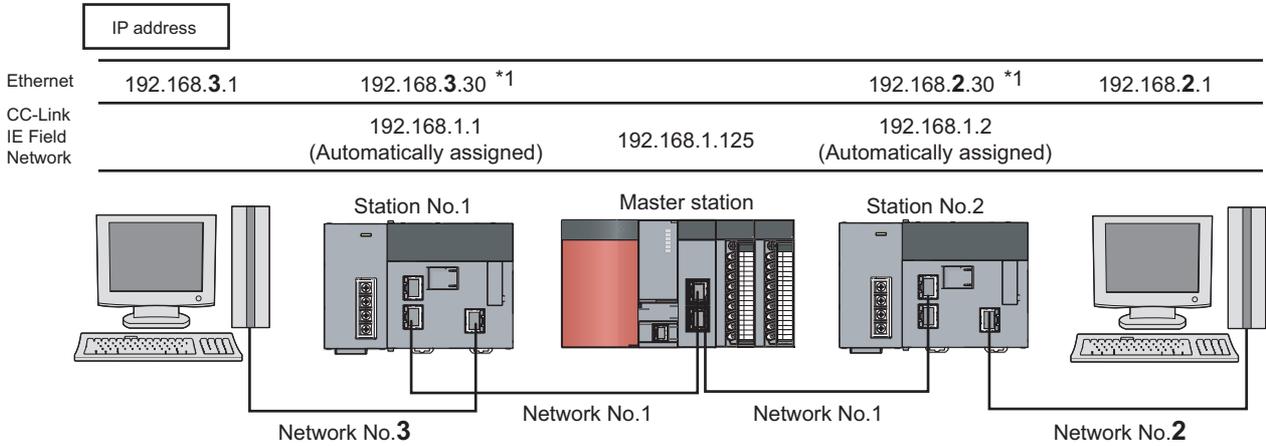
Output Setting During CPU STOP
 Hold
 Clear (ALL OFF)

Set IP address
 Input Format: DEC
 IP Address: 192 168 1 125
 * Please set IP Address and Routing Parameters to use IP packet transfer function.

End Cancel

5. Click the Routing Parameters button to set the communication route.

The communication route needs to be set so that communications reach the network of the Ethernet adapter module (Ethernet part). Because Ethernet adapter modules do not have routing parameters, set the routing parameters of the master station to perform communications.



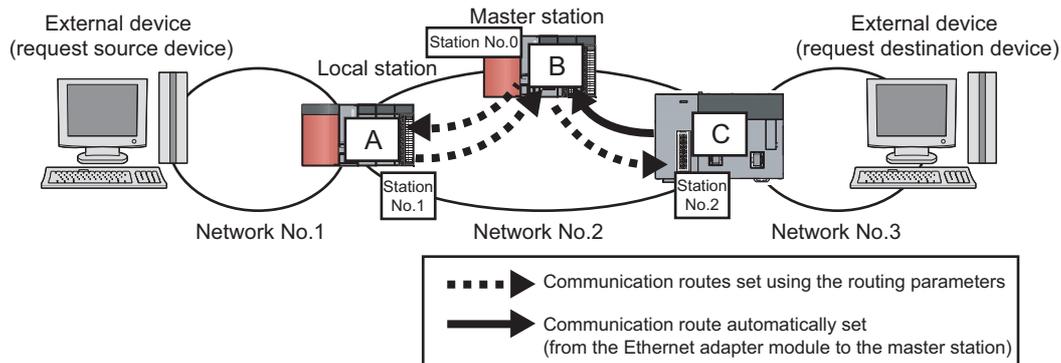
*1 This IP address is set on "Ethernet" in the configuration tool. (☞ Page 118, Section 7.3.5 (1))

Item	Description
Target Network No.	Set the network No. of the external device side to be communicated with. In this setting example, set the third octet of the IP address set in "Ethernet" of the Ethernet adapter module.
Relay Network No.	Set the network No. of the station where communications transmit through to reach the target network No. In this setting example, set the network No. set in "CC-Link IE Field Network" of the Ethernet adapter module.
Relay Station No.	Set the station No. of the station where communications transmit through to reach the target network No. In this setting example, set the station No. set in "CC-Link IE Field Network" of the Ethernet adapter module.

Point

- Details on the routing parameters
Refer to the user's manual for the master/local module used.
- When an external device is connected to an Ethernet adapter module
Set the routing parameters so that communications transmit through the master station.
Communications from an Ethernet adapter module automatically transmit through the master station. The communication routes must be the same for data sending and receiving; therefore, configure the setting so that communications transmit through the master station.

Ex. Proper setting



Setting for **A**

Target Network No.	Relay Network No.	Relay Station No.
3	2	0

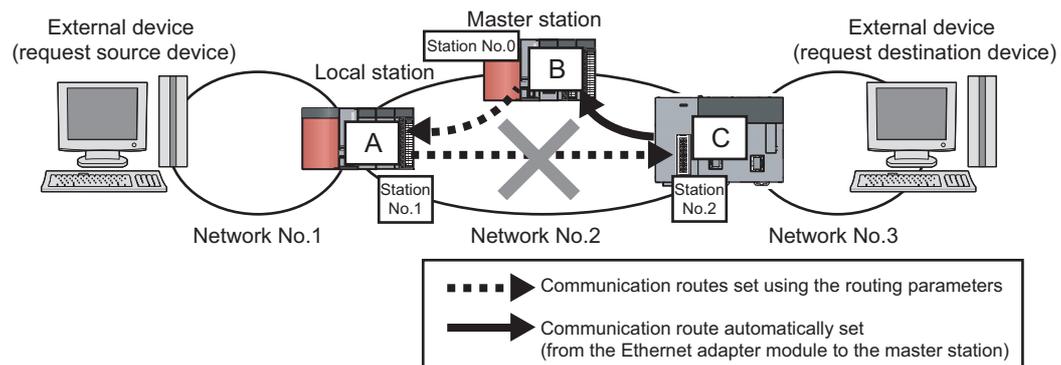
Setting for **B**

Target Network No.	Relay Network No.	Relay Station No.
1	2	1
3	2	2

Setting for **C**
The setting is not required because the Ethernet adapter module does not have the routing parameters.

Set this column to pass communications through the master station.

Ex. Improper setting



Setting for **A**

Target Network No.	Relay Network No.	Relay Station No.
3	2	2

Setting for **B**

Target Network No.	Relay Network No.	Relay Station No.
1	2	1

Setting for **C**
The setting is not required because the Ethernet adapter module does not have the routing parameters.

Because the communication route for data sending is different from that for data receiving, an error occurs.*1

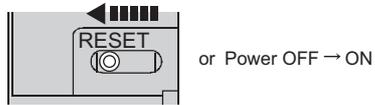
*1 An IP communication test related error (error code: 4A28_H) occurs in the IP communication test.

6. After setting, click the  button.

Write the set parameters to the CPU module on the master station.

 [Online] ⇔ [Write to PLC]

7. Reset the CPU module or power off and on the system.



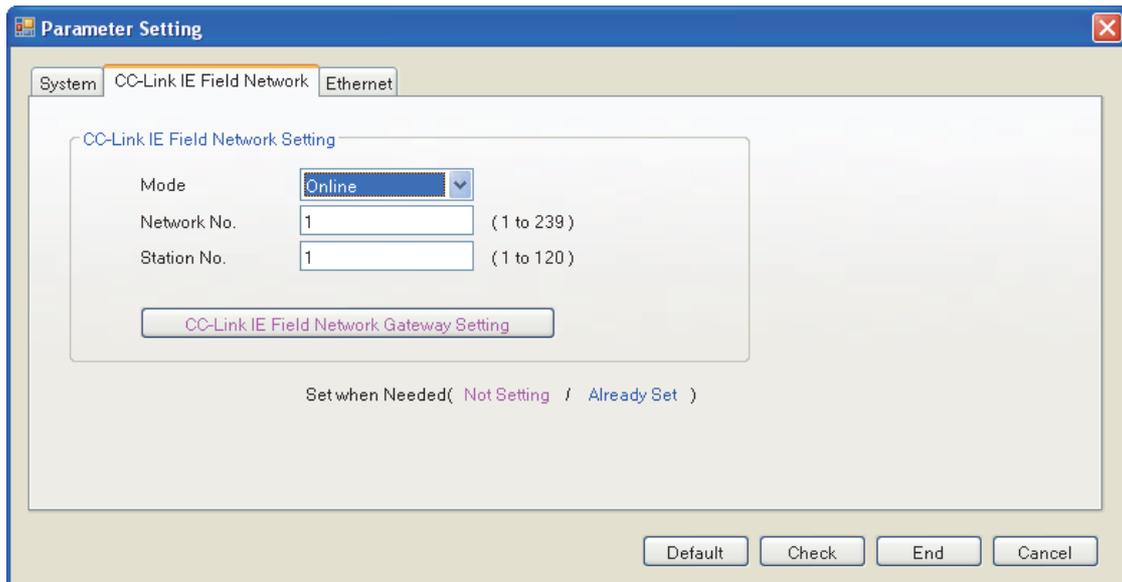
(2) Setting in the Ethernet adapter module

Set the parameters to connect the Ethernet adapter module to CC-Link IE Field Network, using the configuration tool.

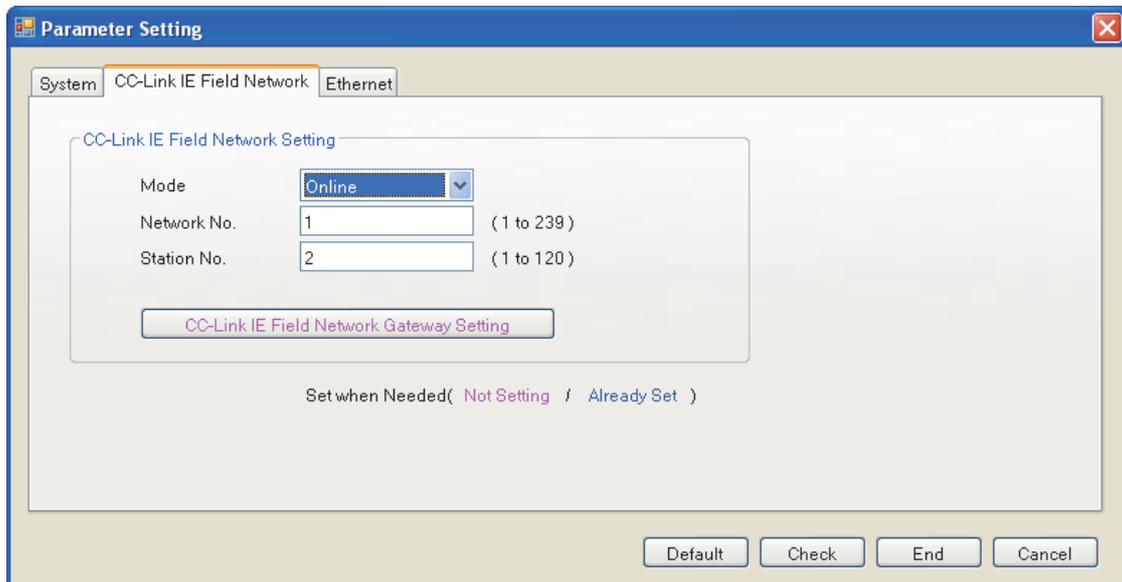
1. Start up the configuration tool using a Web browser. (☞ Page 179, Section 10.1.2)
2. Open the "Parameter Setting" dialog box in the configuration tool to set the parameters as follows.

☞ Setting item tree ⇒ NZ2GF-ETB ⇒ [Parameter] ⇒ "CC-Link IE Field Network"

- Setting on the request source



- Setting on the request destination

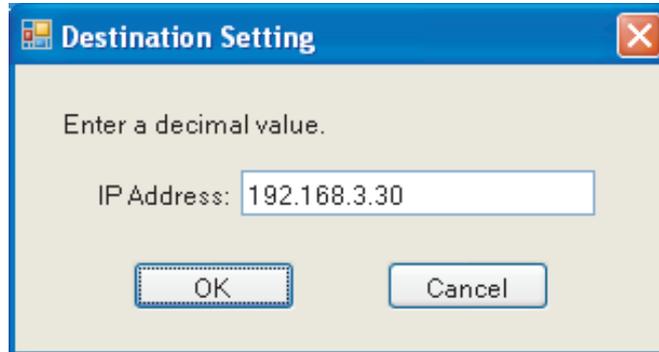


Point

To communicate with an external device having a different network address, the CC-Link IE Field Network gateway setting is also required. (☞ Page 124, Section 7.3.7)

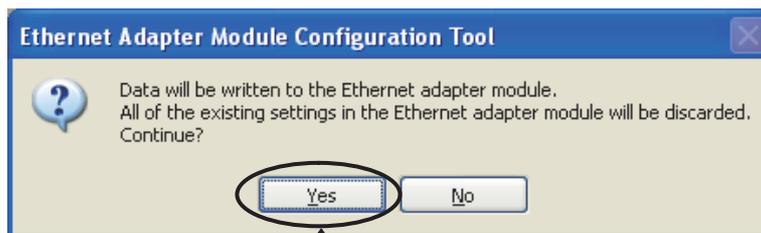
3. After the setting, click the **End** button.
4. Set the IP address of the connected Ethernet adapter module (Ethernet part). Open the "Destination Setting" dialog box in the configuration tool to enter the address as follows.

 [Online] ⇨ [Destination Setting]



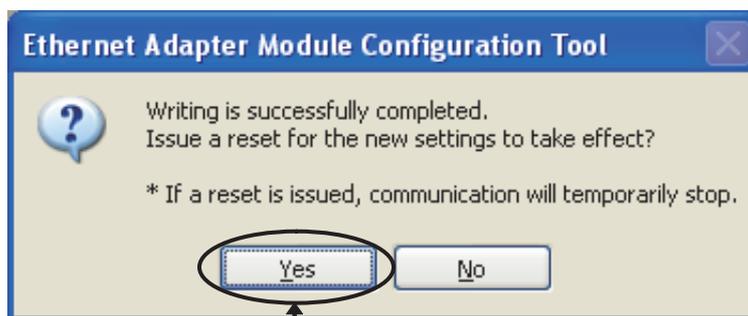
5. Write the set parameters to the Ethernet adapter module. (Set the switch on the Ethernet adapter module to STOP.)

 [Online] ⇨ [Write]



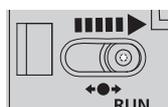
Click

6. The following dialog box appears.



Click

7. Set the switch on the Ethernet adapter module to RUN.



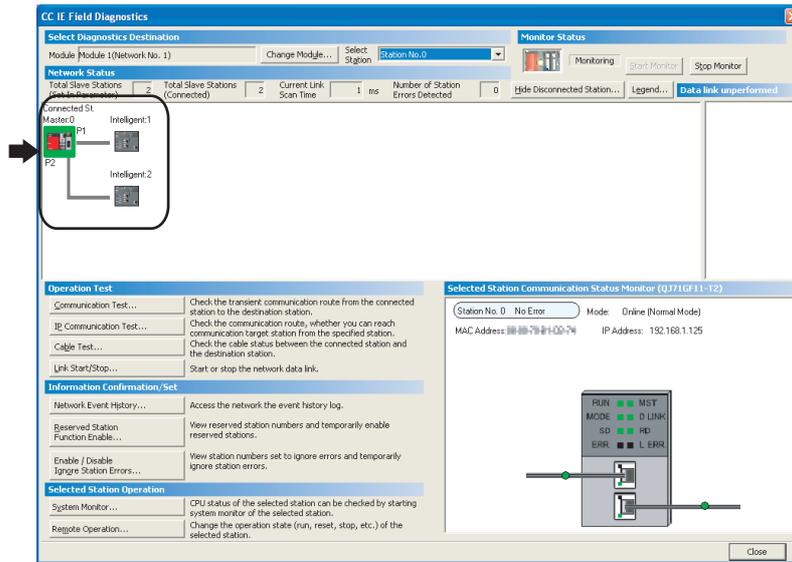
(3) Checking the connection

After setting the parameters in the master station and Ethernet adapter module, check that data link can be normally performed in the master station and Ethernet adapter module. To check the connection, use the CC-Link IE Field Network diagnostics of GX Works2 connected to the master station.

1. In the menu on GX Works2, start up the CC-Link IE Field Network diagnostics.

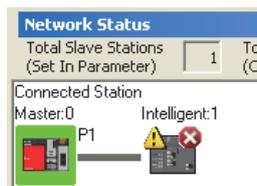
 [Diagnostics] ⇨ [CC IE Field Diagnostics]

When the dialog box appears as follows, the connection is normal.



If a mark, such as , , and , is displayed in "Network Status", an error has occurred. Identify the cause of the error and take corrective action. ( User's manual for the master/local module used)

Ex. If an error occurred in the Ethernet adapter module, the dialog box appears as follows.



7.3.5 Connection to Ethernet

(1) Setting in the Ethernet adapter module

Set the IP address of the Ethernet adapter module (Ethernet part) using the configuration tool.

1. Start up the configuration tool using a Web browser. (☞ Page 179, Section 10.1.2)
2. Open the "Parameter Setting" dialog box in the configuration tool to set the parameters as follows.

☞ Setting item tree ☞ NZ2GF-ETB ☞ [Parameter Setting] ☞ "Ethernet"

- Setting on the request source

Set the IP address and subnet mask pattern of the Ethernet adapter module (Ethernet part).

The screenshot shows the 'Parameter Setting' dialog box with the 'Ethernet' tab active. The 'IP Address' section has 'Input Format' set to 'DEC', 'IP Address' set to 192.168.3.30, and 'Subnet Mask Pattern' set to 255.255.255.0. The 'Communication Mode' is set to 'Auto Negotiation'. There is a checkbox for 'Disable direct MELSOFT connection.' which is unchecked. Buttons at the bottom include 'Default', 'Check', 'End', and 'Cancel'.

- Setting on the request destination

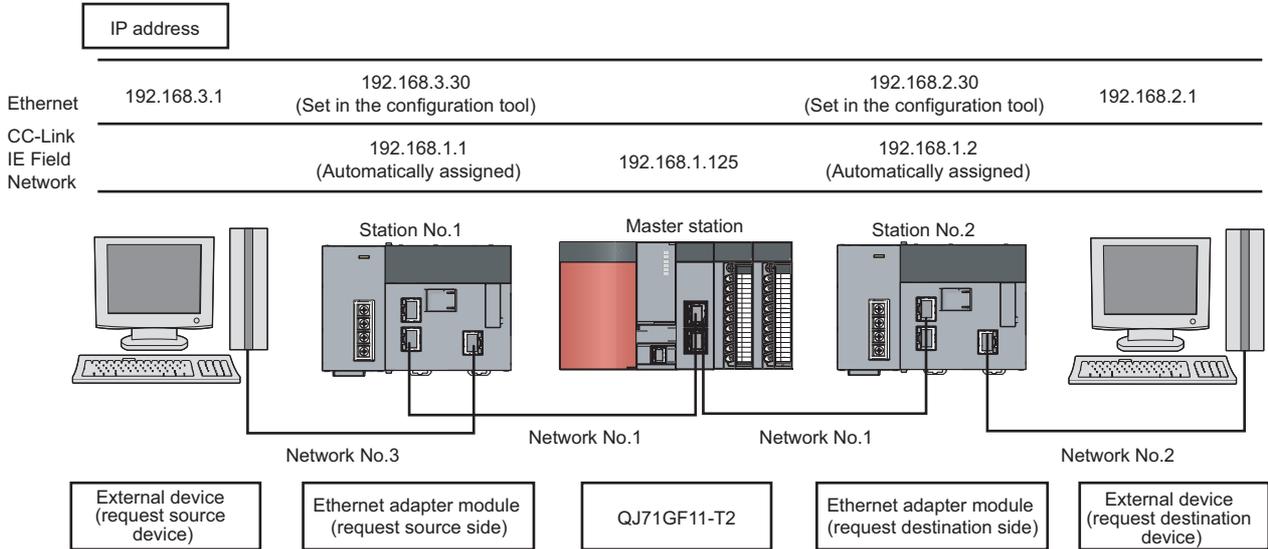
Set the IP address and subnet mask pattern of the Ethernet adapter module (Ethernet part).

The screenshot shows the 'Parameter Setting' dialog box with the 'Ethernet' tab active. The 'IP Address' section has 'Input Format' set to 'DEC', 'IP Address' set to 192.168.2.30, and 'Subnet Mask Pattern' set to 255.255.255.0. The 'Communication Mode' is set to 'Auto Negotiation'. There is a checkbox for 'Disable direct MELSOFT connection.' which is unchecked. Buttons at the bottom include 'Default', 'Check', 'End', and 'Cancel'.

3. In the "Parameter Setting" dialog box, click the button.
4. Follow the steps described on Page 115, Section 7.3.4 (2) to write the set parameters to the Ethernet adapter module.

(2) Changing the IP address of the external device and gateway address setting

Change the IP address of the external device according to the system configuration. In addition, configure the gateway address setting in the external device so that IP communications from the external device transmit through the Ethernet adapter module.



Configuration of the external device

Basic software: Microsoft® Windows® XP Professional Operating System

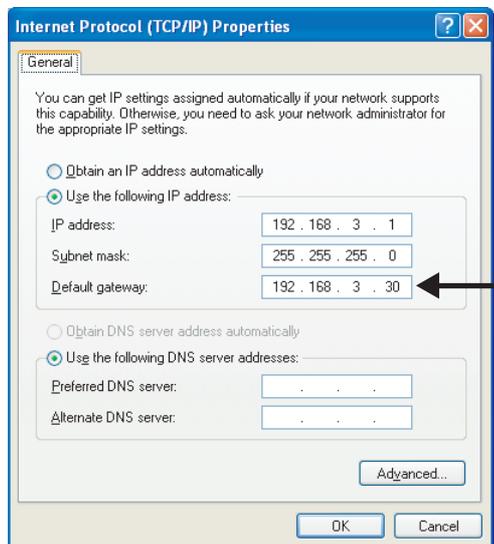
For the gateway address, set the IP address of the Ethernet adapter module (Ethernet part).

When the external device is a personal computer, set the IP address of the Ethernet adapter module (Ethernet part) in the default gateway. When the default gateway has been already set, use the route command to set the communication route where communications for the request destination transmit through the Ethernet adapter module.

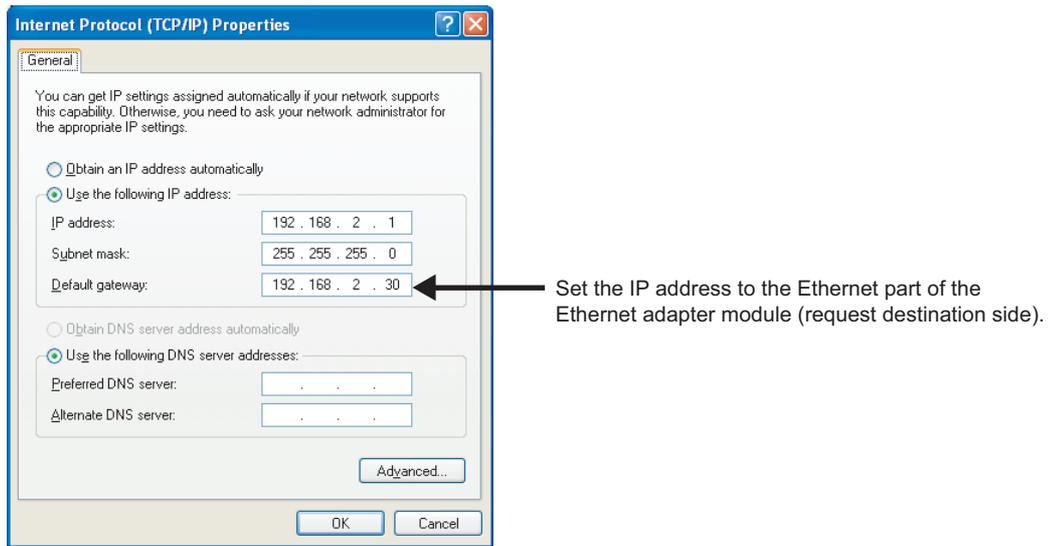
1. Open the "Internet Protocol (TCP/IP) Properties" dialog box and set the parameters as follows.

Control panel ⇒ "Network and Internet Connections" ⇒ "Network Connections" ⇒ "Local Area Connection" ⇒ "General" ⇒ Properties button ⇒ "Internet Protocol (TCP/IP)" ⇒ Properties button

- Setting in the external device (request source device)



- Setting in the external device (request destination device)



7.3.6 Checking communications (IP communication test)

After the setting on Page 108, Section 7.3.3 to Page 118, Section 7.3.5 is completed, communications using the IP address can be performed between the external devices.

Use the IP communication test of the configuration tool to check that communications can be performed. The following items can be checked:

- The cables on the communication route are properly connected.
- The parameter settings that are required for IP communications in an external device on the communication route, such as the IP address, routing parameters on the master and local stations, and CC-Link IE Field Network gateway setting on the Ethernet adapter module, are correct.
- Modules, such as a CPU module, master/local module, and Ethernet adapter module, that do not support the IP packet transfer function are connected or not on the communication route.

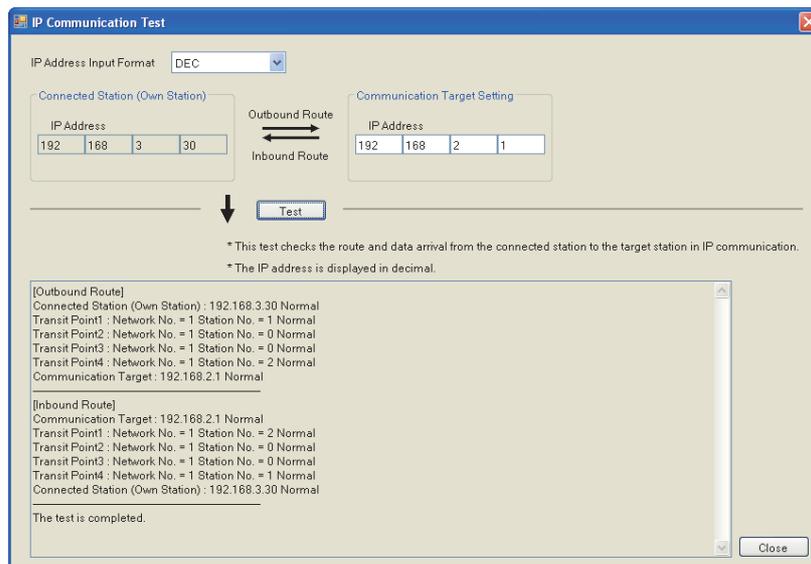
(1) Test method

1. Open the "IP Communication Test" dialog box in the configuration tool.

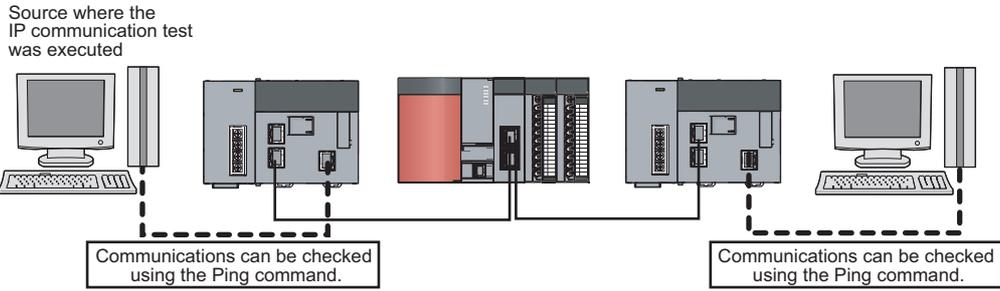


2. Enter the IP address of the external device (request destination device) for "Communication Target".

3. Click the  button.



- In the IP communication test, whether IP communications can be performed between the Ethernet adapter module (request destination) and the external device (request source) set in "Communication Target" is checked using the Ping command. If the external device does not support the Ping command, the IP communication test ends abnormally.

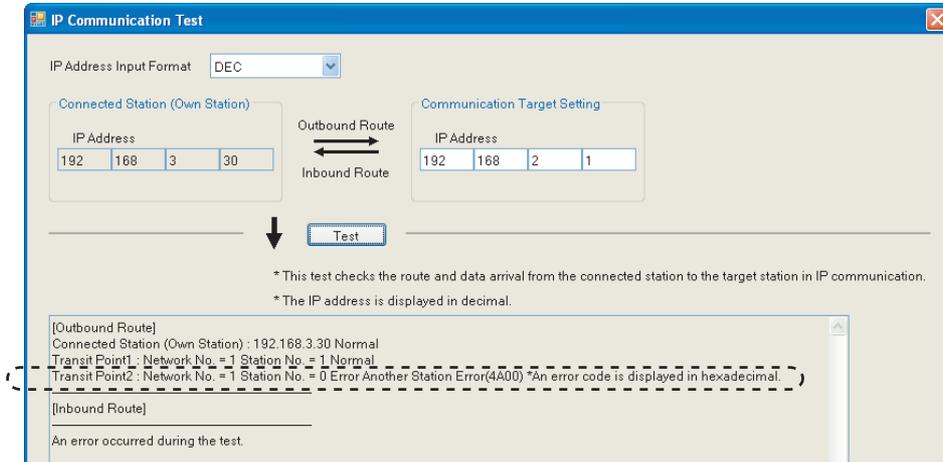


- Up to four IP communication tests can be executed at the same time.
- When the external device (request destination) is connected to a CPU module, the IP communication test cannot be executed for the external device (request destination). Set the IP address of the CPU module connected to the external device (request destination) in the "Communication Target" field on the "IP Communication Test" dialog box.

(2) Corrective action upon abnormal end

(a) If a network number, station number, and an error code are displayed

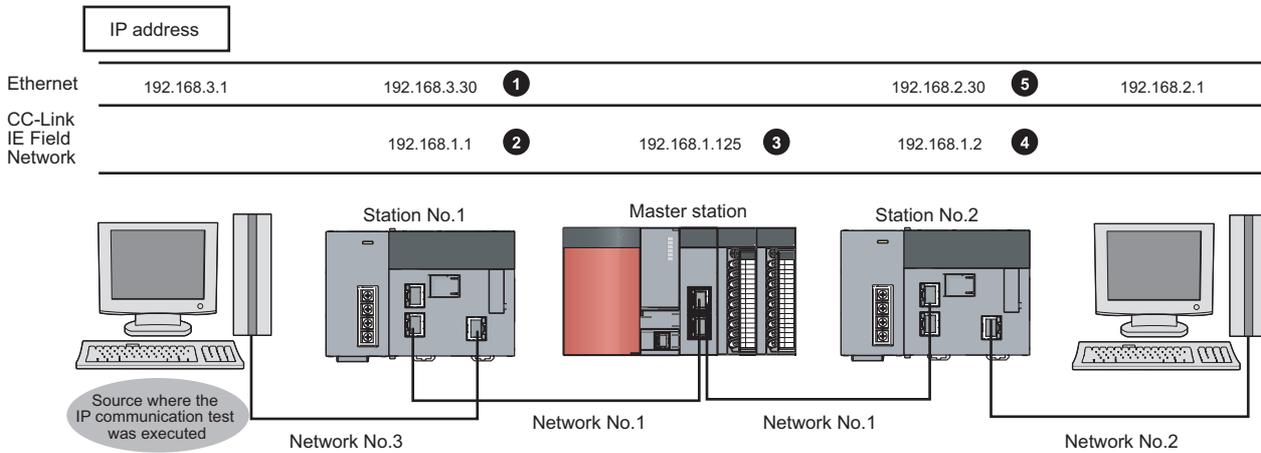
An error has occurred in the station with the network number and station number displayed. Check the error code and take corrective action.



(b) If the cause cannot be identified from symptoms such as a timeout error display

Enter the IP address in a module closest to the device where the IP communication test was executed. Repeat the test until the station that cannot receive communications is found.

In the following system configuration, execute the IP communication test in order of ① to ⑤ .



7.3.7 Setting to access a different network address

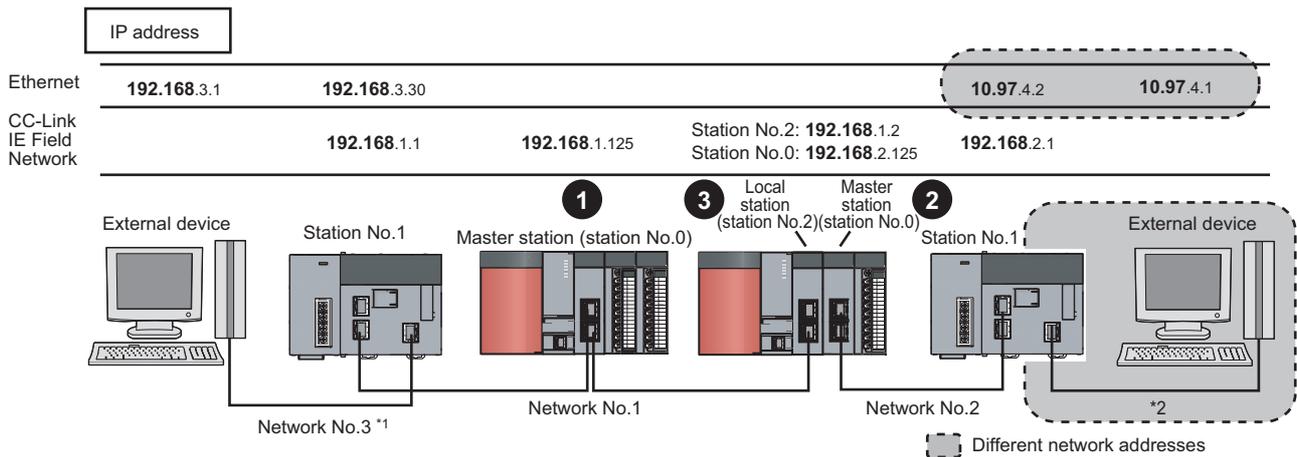
When the IP address does not meet the rules described on Page 106, Section 7.3.1 (1), the following settings are required in addition to the setting described on Page 109, Section 7.3.4 so that communications reach an external device with a different network address.

- A communication route to the Ethernet adapter module connected to the external device with a different network address (routing parameters)
- A network number and station number of the Ethernet adapter module connected to the external device with a different network address (CC-Link IE Field Network gateway setting)

(1) Routing parameters

- A communication route to an external device with a different network address
Set the communication route to the Ethernet adapter module (CC-Link IE Field Network part) connected to an external device.
- A communication route to an external device with the same network address as that of the master station
Set the communication route to the Ethernet adapter module (Ethernet adapter part).

Ex.



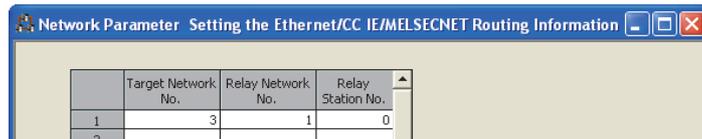
- *1 When the network address of the external device and Ethernet adapter module (Ethernet part) is the same as that of the master station, the third octet of the IP address of the external device side is used as a network number. In the routing parameters of the CPU module, set the communication route to the network number 3.
- *2 Because the network address of the external device is different from that of the master station, the Ethernet part does not have a network number. In the routing parameters, set the communication route to the network number 2.

Project window on GX Works2 ⇒ [Parameter] ⇒ [Network Parameter] ⇒ [Ethernet/CC IE/MELSECNET] ⇒ **Routing Parameters** button

- Setting for ①

	Target Network No.	Relay Network No.	Relay Station No.
1	2	1	2
2	3	1	1

- Setting for ②



- Setting for ③
This setting is not required for a local station.

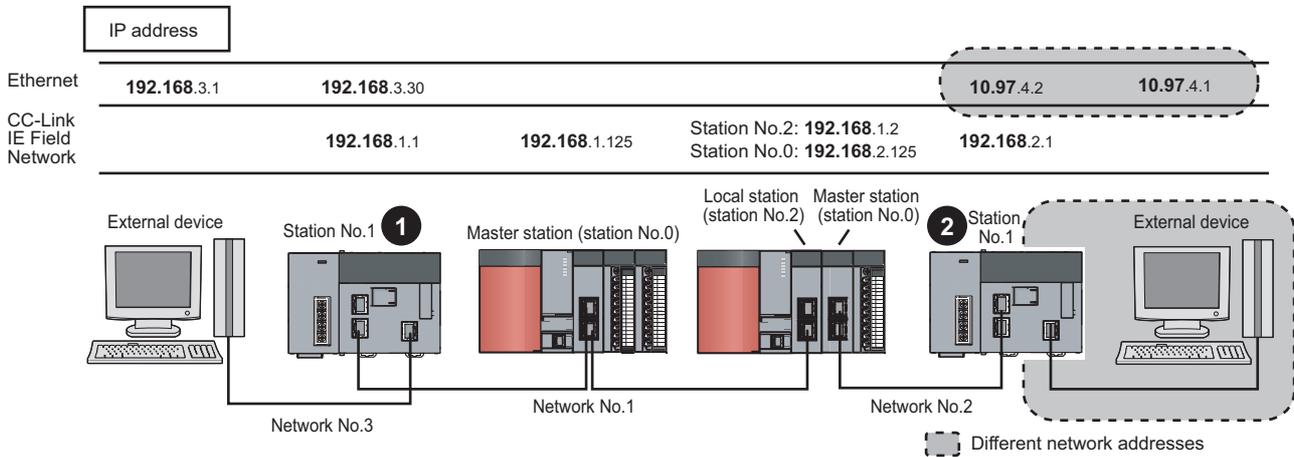
Point

Precautions when setting the routing parameters are the same as those described in Point on Page 109, Section 7.3.4 (1).

(2) CC-Link IE Field Network gateway setting

For an external device having a different network address to receive communications, configure the setting in the station on CC-Link IE Field Network connected to the request destination. (☞ Page 187, Section 10.3.2 (1))

Ex.



☞ Setting item tree ⇨ NZ2GF-ETB ⇨ [Parameter Setting] ⇨ "CC-Link IE Field Network" ⇨

CC-Link IE Field Network Gateway Setting button

- Setting for ①

The screenshot shows the "CC-Link IE Field Network Gateway Setting" dialog box. It features a table for configuring gateway settings. The "IP Address Input Format" is set to "DEC". The table has columns for Priority, No., IP Address, Subnet Mask Pattern, Network No., and Station No. The first row is filled with: Priority: High, No.: 1, IP Address: 10.97.4.1, Subnet Mask Pattern: 255.255.255.255, Network No.: 2, Station No.: 1. Below the table, there are fields for "CC-Link IE Field Network Default Gateway Setting Station" (Network No. and Station No.) and a description: "Set the station No. of the station that serves as a gateway for the target Ethernet network (0 to 120)."

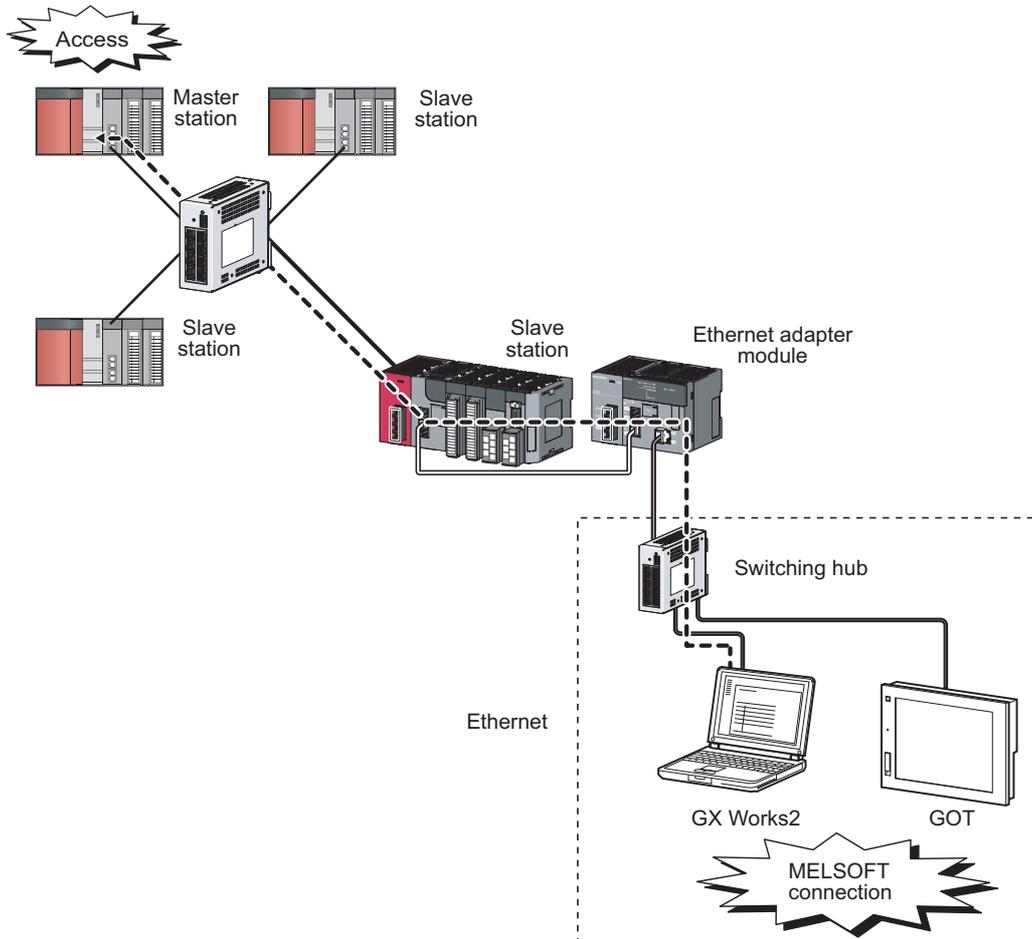
- Setting for ②

Because the network address of ① is the same, communications reach the external device of ① using the routing parameters. Thus the CC-Link IE Field Network gateway setting is not required.

7.4 MELSOFT Connection

Through the Ethernet adapter module, access to a CPU module on another station is possible from GX Works2. The following two kinds of connection methods are allowed between the Ethernet adapter module and GX Works2.

- Connection through a hub (☞ Page 130, Section 7.4.1)
- Direct connection (simple connection) (☞ Page 134, Section 7.4.2)

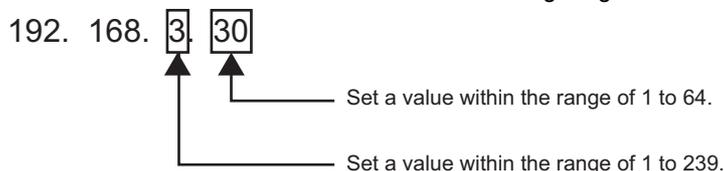


(1) Setting for connection between the Ethernet adapter module and a GOT

The Ethernet adapter module can be connected to a GOT by "Ethernet connection".

(a) Setting for the Ethernet adapter module

Set the third and fourth octets of the IP address within the following ranges.



(b) Setting on the GOT

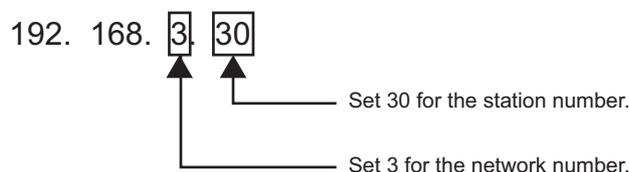
- Access from the GOT to the Ethernet adapter module

Configure the same settings for the GOT as those for "Ethernet connection" of the QJ71E71, except for the following two items.

- 1) Set "MELSEC-L" for "Type" in "Controller Setting."
- 2) Set the following values for the network and station numbers of the connected Ethernet adapter module.

- Network No. : The third octet value of the Ethernet adapter module's IP address
- Station No. : The fourth octet value of the Ethernet adapter module's IP address

Ex. The IP address of the connected Ethernet adapter module is 192.168.3.30.

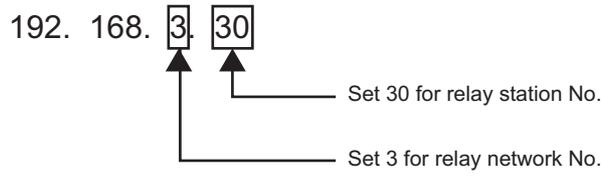


- Access from the GOT to a CPU module on the master or local station through the Ethernet adapter module

Configure the same settings on the GOT as those for "Ethernet Connection" on the QJ71E71, except the following two items.

- 1) Set a "Type" appropriate to the connected CPU module in "Controller Setting".
- 2) Set the following values for the relay network number and the relay station number in the routing parameter setting.
 - Relay Network No. : The third octet value of the IP address of the Ethernet adapter module
 - Relay Station No. : The fourth octet value of the IP address of the Ethernet adapter module

Ex. The IP address of the relay Ethernet adapter module is 192.168.3.30.



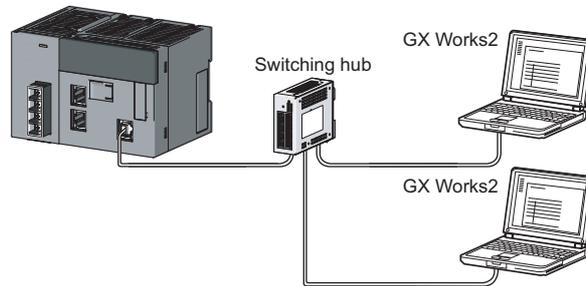
Point

For details on the GOT setting, refer to the following.

 GOT1000 Series Connection Manual (Mitsubishi Products)

7.4.1 Connection through a hub

Through a switching hub, the Ethernet adapter module can be connected to more than one GX Works2.

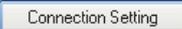


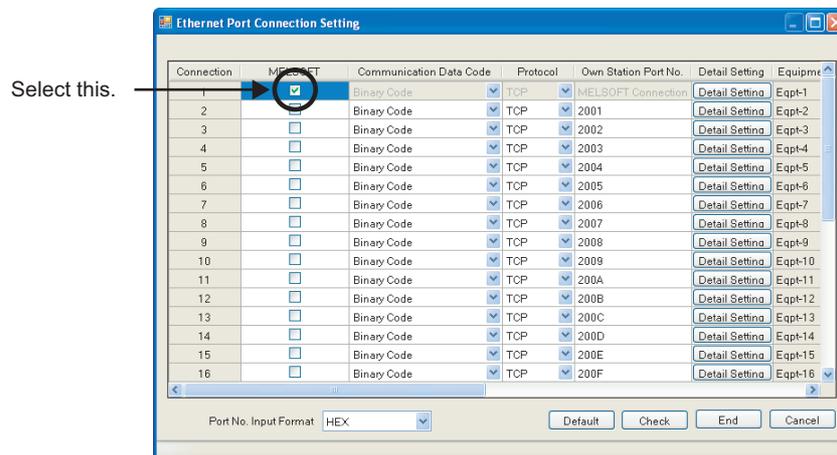
(1) Setting for the Ethernet adapter module

By using the configuration tool, set parameters for the Ethernet adapter module. The setting is required for MELSOFT connection using two or more TCP connections. If MELSOFT connection is implemented under the following conditions, the setting is not necessary.

- UDP connection
- TCP connection using one connection

1. Start the configuration tool. (👉 Page 175, Section 10.1)
2. Set the network No. and station No. (👉 Page 186, Section 10.3.2)
3. Open the "Ethernet Port Connection Setting" window to set connections used for MELSOFT connection.

🖱️ Setting item tree ⇨ NZ2GF-ETB ⇨ [Parameter] ⇨ "Ethernet" ⇨  button



4. Click the  button.
5. Write the parameters to the Ethernet adapter module. (Set the switch on the Ethernet adapter module to STOP.)

🖱️ [Online] ⇨ [Write]

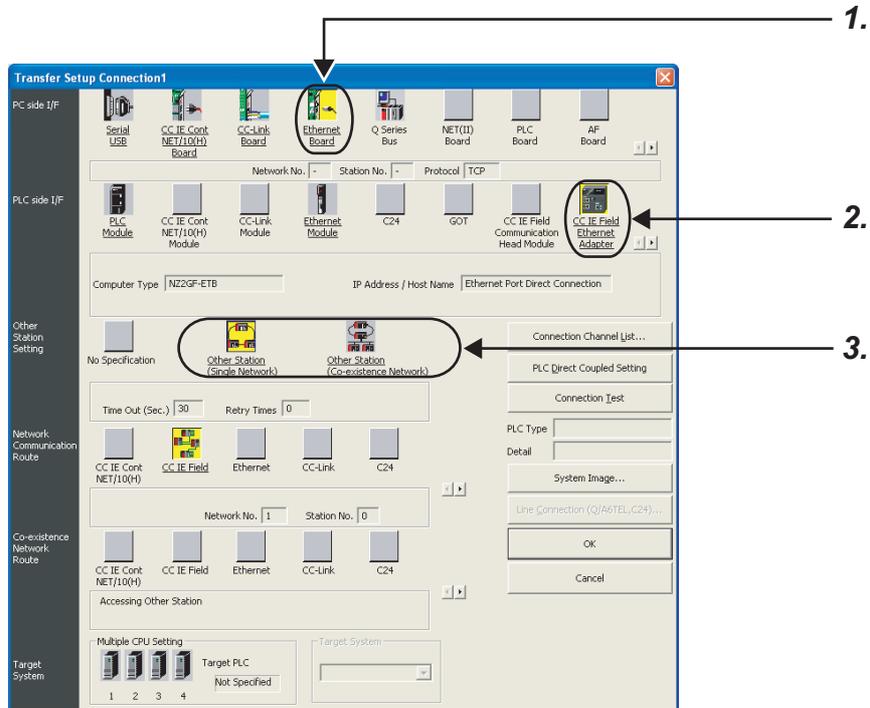
6. Reset the Ethernet adapter module.

(2) Setting in GX Works2

Specify the connection destination in the "Transfer Setup" dialog box of GX Works2.

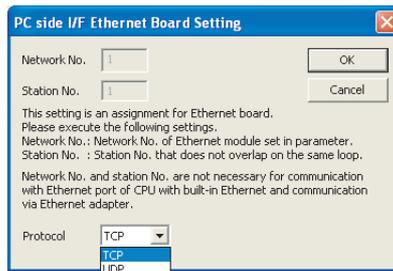
(a) UDP connection or TCP connection using one connection

 Connection Destination window ⇨ [Connection1]



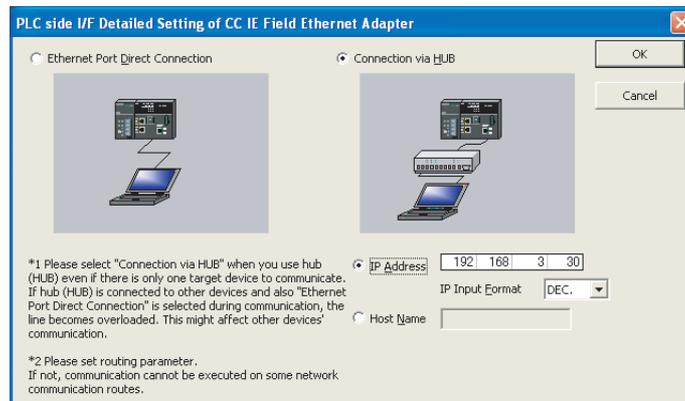
1. Set "Ethernet Board" for PC side I/F.

In the "PC side I/F Ethernet Board Setting" dialog box, select "TCP" or "UDP" protocol. No setting is required for Network No. and Station No.



2. Set "CC IE Field Ethernet Adapter" for PLC side I/F.

In the "PLC side I/F Detailed Setting of CC IE Field Ethernet Adapter" dialog box, set the IP address of the Ethernet adapter module.



3. Specify the other station.

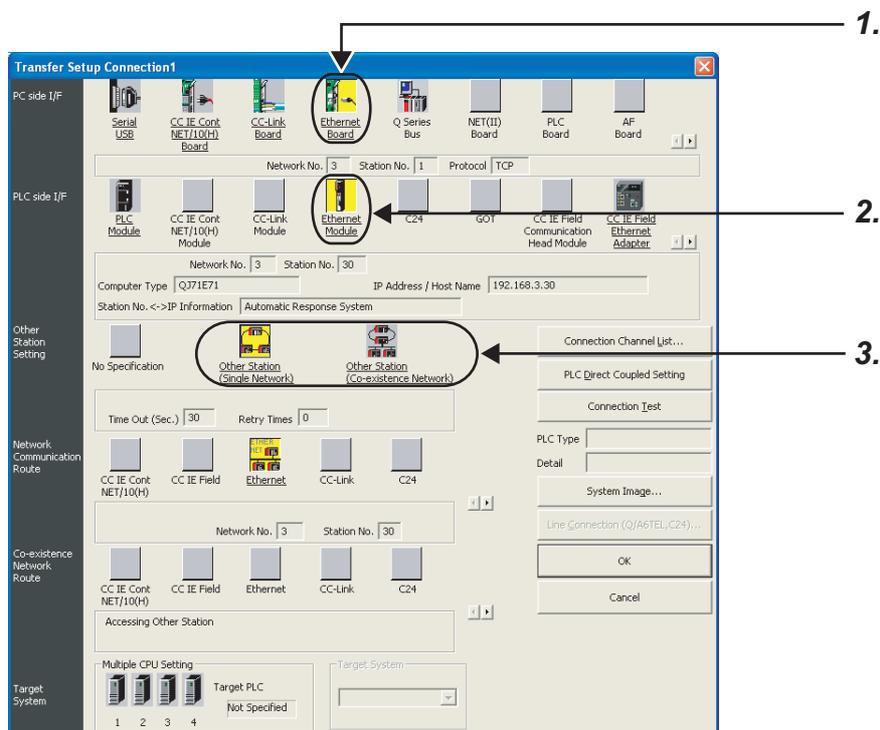
Set the destination CPU.

For the setting method, refer to the following.

GX Works2 Version1 Operating Manual (Common)

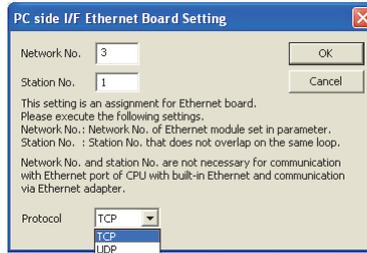
(b) Connection using two or more TCP connections

Connection Destination window ⇨ [Connection1]



1. Set "Ethernet Board" for PC side I/F.

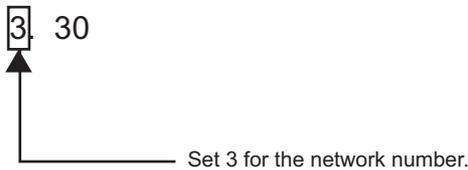
In the "PC side I/F Ethernet Board Setting", configure the settings as shown below.



- Network No. : The third octet value of the Ethernet adapter module's IP address
- Station No. : Any value of 1 to 64
- Protocol : TCP

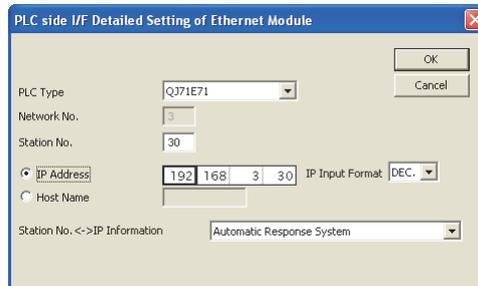
Ex. The IP address of the connected Ethernet adapter module is 192.168.3.30.

192. 168. 3. 30



2. Set "Ethernet Module" for PLC side I/F.

In the "PLC side I/F Ethernet Module Setting", configure the settings as shown below.



- Model name : QJ71E71
- Station No. : Any value of 1 to 64 that does not overlap the Station No. set in the "PC side I/F Ethernet Board Setting"
- IP address : Ethernet adapter module's IP address

3. Specify the other station

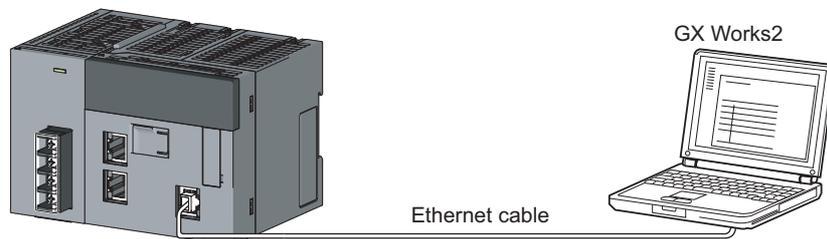
Set the destination CPU

For the setting method, refer to the following.

GX Works2 Version1 Operating Manual (Common)

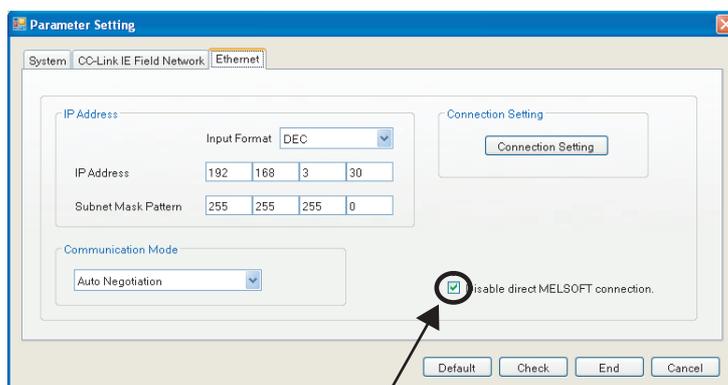
7.4.2 Direct connection (simple connection)

The Ethernet adapter module can be directly connected to GX Works2 with an Ethernet cable, without using a hub. The IP address setting is not required in the destination setting for direct connection.



Point

In the case of direct connection using an Ethernet cable, there is a risk of an illegal access. Selecting the following item in "Ethernet" in the "Parameter Setting" dialog box of the configuration tool will disable direct connection, preventing any illegal access.

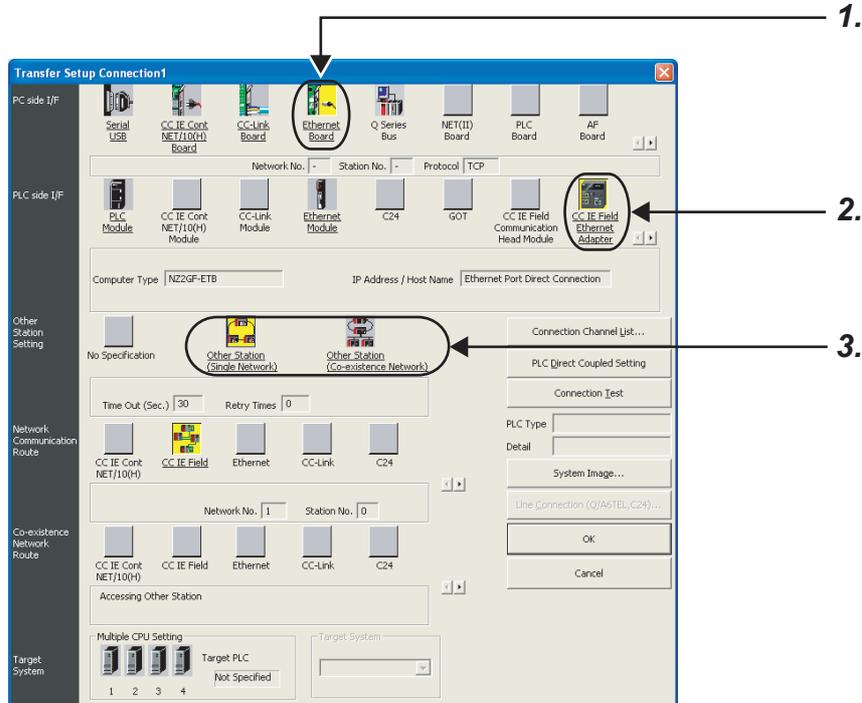


Select this.

(1) Setting in GX Works2

Specify the connection destination in the "Transfer Setup" dialog box.

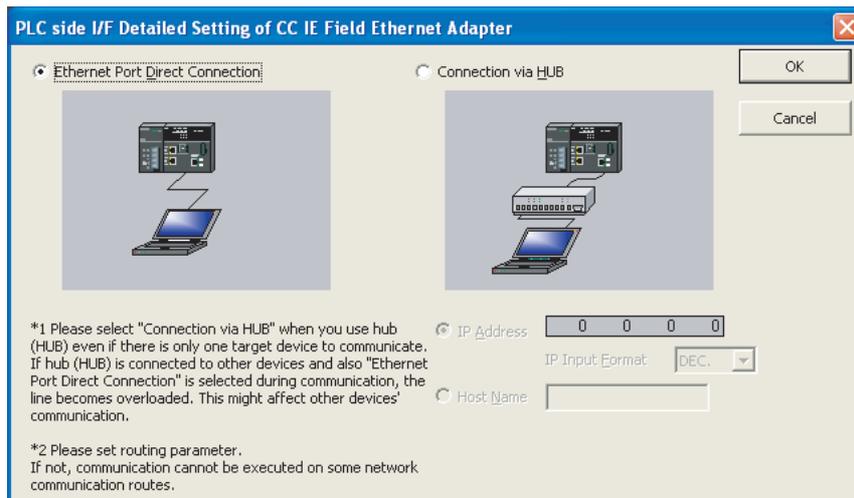
 Connection Destination window ⇨ [Connection1]



1. Set "Ethernet Board" for PC side I/F.

2. Set "CC IE Field Ethernet Adapter" for PLC side I/F.

In the "PLC side I/F Detailed Setting of CC IE Field Ethernet Adapter", select "Ethernet Port Direct Connection" as shown below.



3. Specify the other station.

Set the destination CPU.

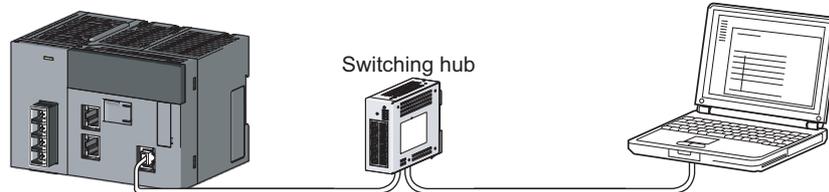
For the setting method, refer to the following.

 GX Works2 Version1 Operating Manual (Common)

(2) Precautions

(a) Connection not regarded as direct connection

Connection between the Ethernet adapter module and GX Works2 through a switching hub is not regarded as direct connection. Do not configure the settings for direct connection.



(b) Conditions under which communication is not possible through direct connection

- Network setting on the personal computer
Communication is not possible in direct connection when two or more Ethernet ports are enabled in the network setting of the personal computer. Correct the setting on the personal computer so that only one Ethernet port will be enabled for direct connection and the others will be disabled.
- IP address setting of the Ethernet adapter module
If any of the following conditions is met, communication may not possible through direct connection. Correct the settings of the Ethernet adapter module and/or personal computer.

[Condition 1]

In the IP address bits of the Ethernet adapter module, all of the bits corresponding to subnet mask 0 of the personal computer are on or off.

Ex.	IP address of the Ethernet adapter module	:	64.	64.	255.	255
	IP address of the personal computer	:	64.	64.	1.	1
	Subnet mask for the personal computer	:	255.	255.	0.	0

[Condition 2]

In the IP address bits of the Ethernet adapter module, all of the bits corresponding to the host address in each class of the personal computer IP address are on or off.

Ex.	IP address of the Ethernet adapter module	:	64.	64.	255.	255
	IP address of the personal computer	:	192.	168.	0.	1
	Subnet mask for the personal computer	:	255.	0.	0.	0

Remark

- The IP address for each class is as follows:
Class A: 0.x.x.x to 127.x.x.x, Class B: 128.x.x.x to 191.x.x.x, Class C: 192.x.x.x to 223.x.x.x
- The host address for each class is the part of 0 as shown below.
Class A: 255. 0. 0. 0, Class B: 255.255. 0. 0, Class C: 255.255.255. 0

CHAPTER 8 MAINTENANCE AND INSPECTION

This chapter describes check points in daily and periodic inspections for using the Ethernet adapter module in the optimum condition.

8.1 Daily Inspection

The following must be checked daily.

Check box

- The Ethernet adapter module is securely mounted to the DIN rail.
- The terminal screws of the power supply part are not loose.
- The terminal cover of the power supply part has not come off.
- Solderless terminals are physically out of contact and away from each other.
- The cable connectors are fully inserted.

8.2 Periodic Inspection

The following must be checked once or twice every six months or a year.

Also, perform this inspection when the system is relocated or modified, or when wiring layout is changed.

Check box

- The ambient temperature is within the range of 0 to 55°C .
- The ambient humidity is within the range of 5 to 95%RH.
- There is no corrosive gas.
- The voltage across 24VDC terminals is within the range of 15.6V to 31.2VDC.
- The Ethernet adapter module is mounted securely.
- No dust or foreign matter is present.
- No error has occurred.

CHAPTER 9 TROUBLESHOOTING

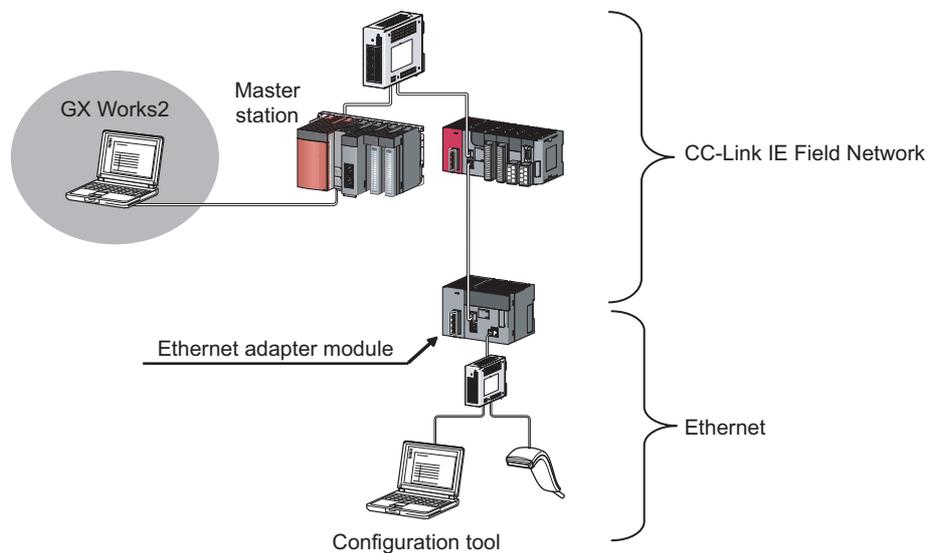
This chapter describes errors that may occur in the Ethernet adapter module, and explains how to identify the causes of the errors and troubleshooting methods.

9.1 Troubleshooting Procedure

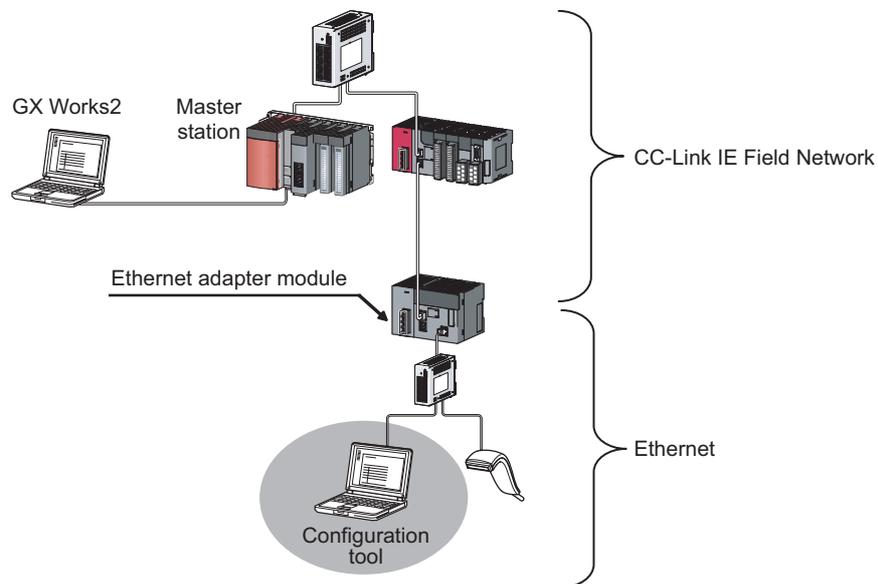
The procedure for identifying the cause of the problem and taking action is explained below.

1. Troubleshooting for the entire CC-Link IE Field Network

The network condition can be checked on the CC-Link IE Field Network diagnostics dialog box of GX Works2, which is connected to the master station. Identify the cause of the problem and take corrective action. ( User's manual for the master/local module used,  Page 141, Section 9.2.1)



- 2. Troubleshooting of the error that has occurred in the Ethernet adapter module**
By the Ethernet Adapter Diagnostics in the configuration tool, an error code can be obtained.
Confirm the error and take corrective action. (☞ Page 143, Section 9.2.2)



- 3. If communication is not possible even after taking the above troubleshooting measures, perform the following:**
- Checking the LEDs (☞ Page 144, Section 9.3)
 - Troubleshooting by symptom (☞ Page 151, Section 9.4)

9.2 Checking the Error Code

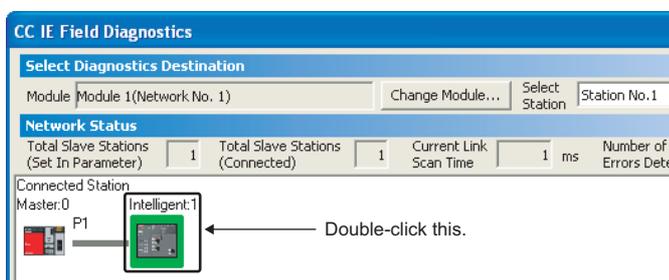
9.2.1 Error history of CC-Link IE Field Network diagnostics

By the CC-Link IE Field Network diagnostics in GX Works2, which is connected to the master station, an error code can be checked.

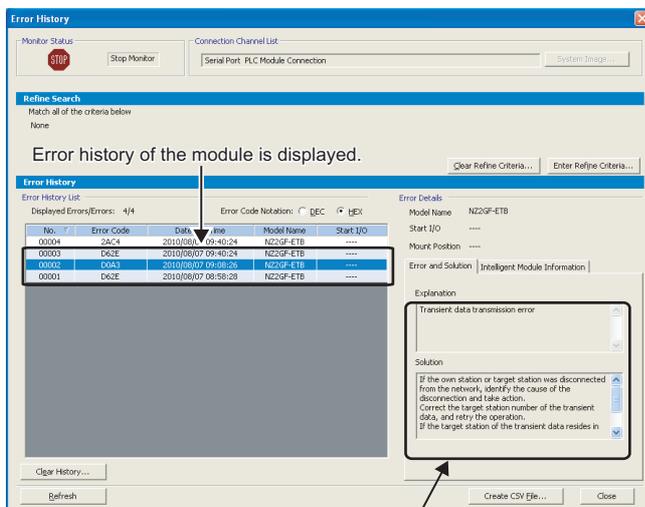
1. From the menu of GX Works2, activate the CC-Link IE Field Network diagnostics.

 [Diagnostics] ⇒ [CC IE Field Diagnostics]

2. Under "Network Status", double-click the icon that represents the Ethernet adapter module. The "Error History" dialog box is displayed.



3. The error history is displayed. check the error details and solution and troubleshoot the problem.



The details and solution of the error selected in "Error history list" is displayed.

(1) Precautions

(a) The date and time of the error is not correctly displayed.

- Check if the master station is connected to the Ethernet adapter module. The Ethernet adapter module periodically collects time information from the CPU module on the master station. If the Ethernet adapter module is not connected, the time and date information of errors will not be displayed correctly. (Initial value: 2000/01/01 00:00:00)
- After acquisition of clock information from the master station, if the Ethernet adapter module is powered off and then on, the clock will restart from the time of the power off. (The clock pauses during power off.) Because of this, the displayed time and date of the error occurred during initial processing may be different from the actual time and date.

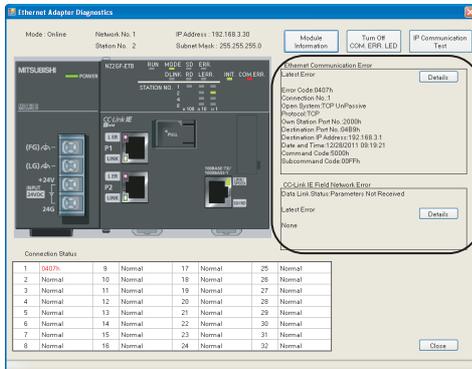
(b) The error code is not correctly displayed.

If errors occurred frequently, "*HST.LOSS*" may be displayed in the "Error Code" column, instead of an error code.

No. ▾	Error Code	Date and Time	Model Name	Start I/O
00005	*HST.LOSS*	2010/08/06 10:28:33	NZ2GF-ETB	----

9.2.2 Ethernet Adapter Diagnostics

By the Ethernet Adapter Diagnostics in the configuration tool, an error that has occurred on the Ethernet can be checked.



1. Open the "Ethernet Adapter Diagnostics" window.

[Online] ⇒ [Diagnostics]

2. The latest error code is displayed. Refer to "Error Code List" and take corrective action.

Page 157, Section 9.5)

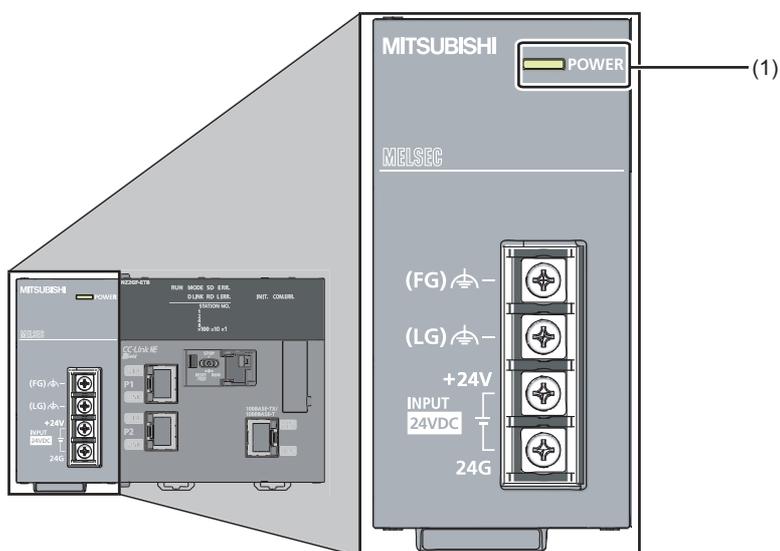
9.3 Checking the LEDs

The following explains how to troubleshoot the problem by checking the LEDs. Use this troubleshooting method when communication cannot be performed even after taking corrective action according to the CC-Link IE Field diagnostics.

Point

The state of the LEDs can be also checked from the Ethernet Adapter Diagnostics. (☞ Page 143, Section 9.2.2)

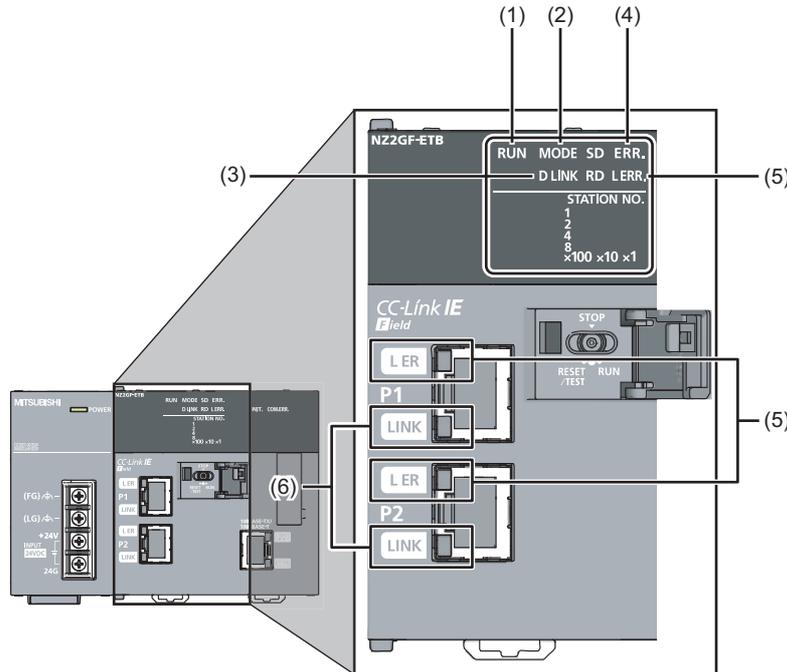
9.3.1 The LED on the power supply part



(1) When the POWER LED is off

Checking	Action
Is power being supplied?	Supply power. (☞ Page 59, Section 6.4.1)

9.3.2 The LEDs on the CC-Link IE Field Network part



(1) RUN LED

(a) When turned off

Checking	Action
Is the Ethernet adapter module in execution of a unit test?	If the MODE LED is flashing, a unit test is being performed. Reset the Ethernet adapter module, or turn off the power and then on.

If the above action does not solve the problem, perform a unit test on the Ethernet adapter module to check for hardware failure. (👉 Page 57, Section 6.3)

(b) When flashing

Checking	Action
Is the switch of the Ethernet adapter module set to RUN?	Set the switch of the Ethernet adapter module to RUN to start data link.
Is the module in the remote STOP status?	Cancel the remote STOP and start data link.
Is the master station in the RUN status?	Place the master station into the RUN state. If the master station has stopped due to an error, troubleshoot it referring to the manual for the master station. (📖 User's manual for the master/local module used)
Was the Ethernet adapter module disconnected while the master station was in the STOP status?	<ul style="list-style-type: none"> Place the master station into the RUN state, and reconnect the Ethernet adapter module to the network. Reset the Ethernet adapter module since it retains the STOP status data of the master station.

If the above does not solve the problem, perform a unit test on the Ethernet adapter module to check for hardware failure. (👉 Page 57, Section 6.3)

(2) MODE LED

(a) When turned off

Checking	Action
Is the mode of the Ethernet adapter module set to Online?	Change the mode of the Ethernet adapter module to Online. (☞ Page 186, Section 10.3.2)

If the above action does not solve the problem, perform a unit test on the Ethernet adapter module to check for hardware failure. (☞ Page 57, Section 6.3)

(b) When flashing

Checking	Action
Is the mode of the master station set to Online?	Change the mode of the master station to Online. (📖 User's manual for the master/local module used)
Is the Ethernet adapter module in preparation for a unit test?	If the switch on the Ethernet adapter module was repeatedly switched between STOP and RESET/TEST, reset the Ethernet adapter module and start the unit test.
Is the Ethernet adapter module in execution of a unit test? (The ×1 or ×10 LED is flashing.)	The Ethernet adapter module is in execution of the unit test. Upon termination of the test, the D LINK LED turns on. Take action according to the test result. (☞ Page 57, Section 6.3)

If the above does not solve the problem, perform a unit test on the Ethernet adapter module to check for hardware failure. (☞ Page 57, Section 6.3)

(3) D LINK LED

(a) When turned off

Checking	Action
Is the Ethernet cable connected to PORT1 or PORT2 normal?	<ul style="list-style-type: none"> • Check if Ethernet cables are used. • Check if 1000BASE-T-compliant Ethernet cables are used. (☞ Page 48, Section 5.2.2 (1)) • Check if the station-to-station distance is 100m or less. (☞ Page 65, Section 6.4.4 (7)) • Check if the cable laying (bend radius) is within the specified range. (📖 Manual for the Ethernet cable used) • Check the Ethernet cables for disconnection.
Are the other stations, where the Ethernet adapter module is connected, normal?	Check if the other stations are powered on.
Is the switching hub used in the system normal?	<ul style="list-style-type: none"> • Check if the switching hub is powered on. • Check if a 1000BASE-T-compliant switching hub is used. (☞ Page 49, Section 5.2.2 (2))
Does the network No. of the Ethernet adapter module match that of the connected network?	Change the network No. of the Ethernet adapter module to that of the connected network.

If the above does not solve the problem, perform the following tests on the Ethernet adapter module to check for failure.

- Unit test (☞ Page 57, Section 6.3)
- Cable test (📖 User's manual of the master/local module used)

(b) When flashing

Checking	Action
Are the STATION NO. LEDs of the Ethernet adapter module correctly showing the station number specified in Network Configuration Setting of the master station?	<ul style="list-style-type: none"> Have the station number of the actual Ethernet adapter module and the one specified in Network Configuration Setting of the master station matched.

From the master station, perform the CC-Link IE Field Network diagnostics in GX Works2 to check the network status, and take action. ( User's manual of the master/local module used) ( Page 141, Section 9.2.1)

(4) When the ERR. LED turned on

From the master station, perform the CC-Link IE Field Network diagnostics in GX Works2 to check the network status, and take action. ( User's manual of the master/local module used) ( Page 141, Section 9.2.1)

(5) When the L ERR. LED or L ER LED turned on

Checking	Action
Is the Ethernet cable connected to PORT1 or PORT2 normal?	<ul style="list-style-type: none"> Check if Ethernet cables are used. Check if 1000BASE-T-compliant Ethernet cables are used. ( Page 48, Section 5.2.2 (1)) Check if the station-to-station distance is 100m or less. ( Page 65, Section 6.4.4 (7)) Check if the cable laying (bend radius) is within the specified range. ( Manual for the Ethernet cable used)
Is the switching hub used in the system normal?	<ul style="list-style-type: none"> Check if a 1000BASE-T-compliant switching hub is used. ( Page 49, Section 5.2.2 (2)) Check if the switching hub is powered on.
Are the other stations, where the Ethernet Adapter Module is connected, normal?	Check if the other stations are powered on.
Is the mode of the master station set to Online?	Change the mode of the master station to Online. ( User's manual for the master/local module used)
Is there any noise affecting the system?	Check the wiring condition.
Is the loopback function enabled for the master station?	When the loopback function is enabled, check if the ring topology is correctly configured for the port where the L ERR. LED is on. ( User's manual for the master/local module used)

If the above does not solve the problem, perform the following tests on the Ethernet adapter module to check for failure.

- Unit test ( Page 57, Section 6.3)
- Cable test ( User's manual of the master/local module used)

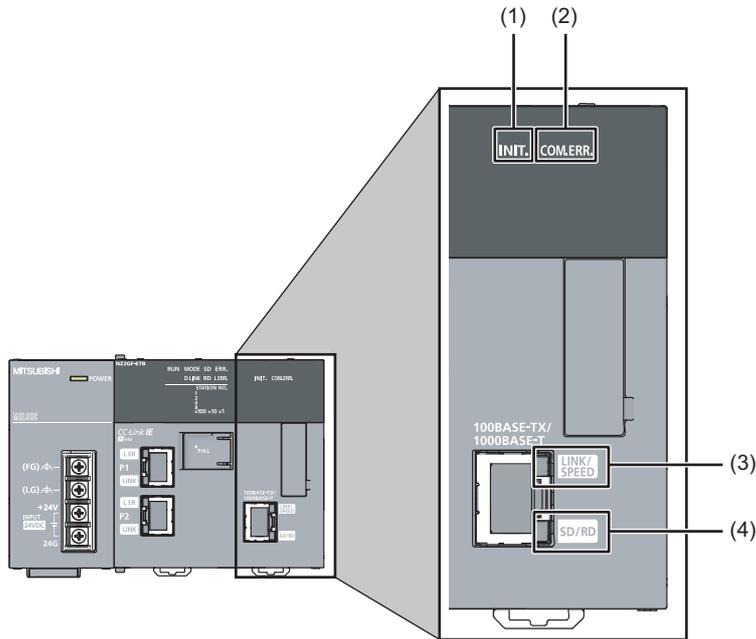
(6) When the LINK LED turned off

Checking	Action
Is the Ethernet cable connected to PORT1 or PORT2 normal?	<ul style="list-style-type: none"> • Check if Ethernet cables are used. • Check if 1000BASE-T-compliant Ethernet cables are used. ( Page 48, Section 5.2.2 (1)) • Check if the station-to-station distance is 100m or less. ( Page 65, Section 6.4.4 (7)) • Check if the cable laying (bend radius) is within the specified range. ( Manual for the Ethernet cable used) • Check the Ethernet cables for disconnection.
Are the other stations, where the Ethernet adapter module is connected, normal?	Check if the other stations are powered on.
Is the switching hub used in the system normal?	<ul style="list-style-type: none"> • Check if the switching hub is powered on. • Check if a 1000BASE-T-compliant switching hub is used. ( User's manual for the master/local module used)

If the above does not solve the problem, perform the following tests on the Ethernet adapter module to check for failure.

- Unit test ( Page 57, Section 6.3)
- Cable test ( User's manual of the master/local module used)

9.3.3 The LEDs on the Ethernet part



(1) When the INIT. LED turned off

Checking	Action
Are the configured Ethernet adapter module parameters correct?	Check if the parameters set by the configuration tool are correct. (☞ Page 189, Section 10.3.3)

If the above action does not solve the problem, perform a unit test on the Ethernet adapter module to check for failure. (☞ Page 57, Section 6.3)

(2) When the COM.ERR. LED turned on

After removing the error cause according to the Ethernet Adapter Diagnostics, follow one of the instructions below to turn off the COM.ERR.LED.

- Send an SLMP message (Clear Error (command: 1617)) from the external device.
- Click the Turn Off COM.ERR. button on the "Ethernet Adapter Diagnostics" window in the configuration tool.

(3) When the LINK/SPEED LED turned off

Checking	Action
Are the Ethernet cables connected to the Ethernet ports normal?	<ul style="list-style-type: none"> • Check if Ethernet cables are used. • Check if 1000BASE-T- or 100BASE-TX-compliant Ethernet cables are used. (☞ Page 48, Section 5.2.2 (1)) • Check if the station-to-station distance is 100m or less. (☞ Page 65, Section 6.4.4 (7)) • Check if the cable laying (bend radius) is within the specified range. (📖 Manual for the Ethernet cable used) • Check the Ethernet cables for disconnection.
After sending the Ping command from the personal computer connected to the Ethernet adapter module, is a normal response returned?	If a normal response is not returned, replace the Ethernet cable.
Are the other stations, where the Ethernet adapter module is connected, normal?	Check if the other stations are powered on.
Is the switching hub used in the system normal?	<ul style="list-style-type: none"> • Check if the switching hub is powered on. • Check if a 1000BASE-T- or 100BASE-TX-compliant switching hub is used. (📖 User's manual for the master/local module used)

If the above does not solve the problem, perform a unit test on the Ethernet adapter module to check for failure.
(☞ Page 57, Section 6.3)

(4) The SD/RD LED does not turn on

Checking	Action
Is the Ethernet cable connected to the Ethernet port normal?	<ul style="list-style-type: none"> • Check if Ethernet cables are used. • Check if 1000BASE-T- or 100BASE-TX-compliant Ethernet cables are used. (☞ Page 48, Section 5.2.2 (1)) • Check if the station-to-station distance is 100m or less. (☞ Page 65, Section 6.4.4 (7)) • Check if the cable laying (bend radius) is within the specified range. (📖 Manual for the Ethernet cable used)
Are the switching hub and external devices, where the Ethernet adapter module is connected, normal?	Check if the switching hub and external devices are powered on.
Are the parameters configured for the Ethernet adapter module correct?	In "Ethernet" in the "Parameter Setting" dialog box of the configuration tool, correct the IP address and subnet mask pattern values. (☞ Page 189, Section 10.3.3)
Is the program running from the external device correct?	Modify the program that is running from the external device. (☞ Page 79, Section 7.1.5 (2))

If the above does not solve the problem, perform a unit test on the Ethernet adapter module to check for failure.
(☞ Page 57, Section 6.3)

9.4 Troubleshooting by Symptom

This section describes troubleshooting methods by symptom.

Point

- If the problem is not solved by troubleshooting by symptom
Perform a unit test on the Ethernet adapter module to check for hardware failure. (☞ Page 57, Section 6.3)

9.4.1 Cyclic transmission cannot be performed

When cyclic data are not delivered to other stations or not received from the master station, troubleshoot the problem as shown below.

Checking	Action
Is the D LINK LED on the Ethernet adapter module on?	If the D LINK LED is flashing or off, troubleshoot the problem by checking the LEDs. (☞ Page 144, Section 9.3)
Is the switch of the Ethernet adapter module set to "RUN"?	Set the switch of the Ethernet adapter module to "RUN."
Is the RUN LED on the Ethernet adapter module on?	If the RUN LED is flashing or off, troubleshoot the problem by checking the LEDs. (☞ Page 144, Section 9.3)

If the above does not solve the problem, check the link device assignment of the master station or the refresh target devices set in the refresh parameter setting for any error. (📖 User's manual for the master/local module used)

9.4.2 Transient transmission cannot be performed

(1) Transmission from a master or local station to the Ethernet adapter module

If transient transmission to the target station is not available, check if the network number and station number of the Ethernet adapter module are correctly set. (☞ Page 186, Section 10.3.2)

If they are set on the Ethernet adapter module, troubleshoot the problem referring to the master/local module troubleshooting section. (📖 User's manual for the master/local module used.)

(2) Transmission from GX Works2 and through the Ethernet adapter module

Troubleshoot the problem as shown below when MELSOFT connection from GX Works2 through the Ethernet adapter module is not possible.

Checking	Action
Is the D LINK LED on the Ethernet adapter module on or flashing?	If the D LINK LED is off, troubleshoot the problem by checking the LEDs. (☞ Page 144, Section 9.3)
Are the settings in "Transfer Setup" correct?	Correct the settings in "Transfer Setup" of GX Works2. (☞ Page 105, Section 7.3)
Does the network No. of the Ethernet adapter module match that of the connected network?	Change the network No. of the Ethernet adapter module to that of the connected network.

9.4.3 Configuration tool does not start, or communication is not available

Troubleshoot the problem as shown below if the configuration tool does not start or communication is not available.

Checking	Action
Is the Ethernet cable connected to the Ethernet port normal?	<ul style="list-style-type: none"> • Check if an Ethernet cable is used. • Check if 1000BASE-T- or 100BASE-TX-compliant Ethernet cables are used. (☞ Page 48, Section 5.2.2 (1)) • Check if the station-to-station distance is 100m or less. (☞ Page 65, Section 6.4.4 (7)) • Check if the cable laying (bend radius) is within the specified range. (📖 Manual for the Ethernet cable used)
Are the external devices, where the Ethernet adapter module is connected, normal?	Check if the external devices are powered on.
Is the switching hub used in the system normal?	<ul style="list-style-type: none"> • Check if the switching hub is powered on. • Check if a 1000BASE-T- or 100BASE-TX-compliant switching hub is used. (☞ Page 49, Section 5.2.2 (2))
Is the IP address specified at startup of the configuration tool correct?	<p>Enter a correct IP address in the address box of the Web browser or in "Destination Setting" of the configuration tool. (☞ Page 179, Section 10.1.2)</p> <p>If the IP address set for the configuration tool is unknown, the settings of the Ethernet adapter module can be changed back to the factory default settings. (☞ Page 222, Appendix 6)</p>
Are the Web browser settings correct?	<p>Configure the settings so that the proxy server is not used. (☞ Page 176, Section 10.1.1 (4))</p>
Is the firewall enabled on the personal computer?	Disable the firewall on the personal computer and check whether communications can be performed. If communications are performed, check and correct the firewall settings.
Is the antivirus software on the personal computer blocking the communications?	<ul style="list-style-type: none"> • Lower the security setting level of the antivirus software. • Disable the firewall of the antivirus software and check whether communications can be performed. If communications are performed, check and correct the firewall settings of the antivirus software. • Stop the operation of the antivirus software.
Is the .NET Framework 2.0 SP2 or later installed yet?	Install the .NET Framework 2.0 SP2 or later.

9.4.4 Configuration tool is not displayed in English

Troubleshoot the problem as shown below if the configuration tool is not displayed in English.

Checking	Action
Is the version of the Web browser correct?	<p>Check the version of the Web browser. (☞ Page 50, Section 5.3.1 (1))</p>
Are the Web browser settings correct?	<p>Configure the settings so that the JavaScript is enabled. (☞ Page 176, Section 10.1.1 (4))</p>
Has the configuration tool of the Ethernet adapter module, with a serial number (first five digits) of "12101" or earlier, ever been started up?	<ul style="list-style-type: none"> • Start the configuration tool from the Ethernet adapter module. (Do not start the configuration tool stored on the personal computer.) • Delete temporary Internet files from the Web browser and start the configuration tool.

(1) Deleting the temporary Internet files

Delete the files in the "Delete Browsing History" dialog box.

Ex. Operating procedure

- Computer environment

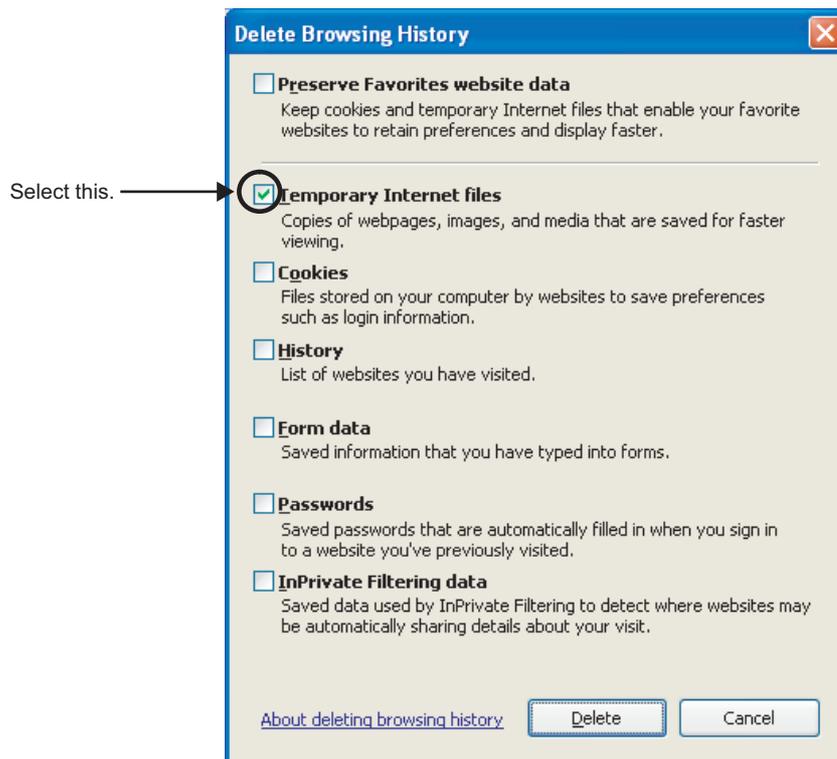
Operating system: Microsoft® Windows® XP Professional Operating System

Web browser: Internet Explorer® 8.0

1. Open the "Delete Browsing History" dialog box.

 Web browser ⇨ [Tools] ⇨ [Internet Options] ⇨ "General" ⇨  button

2. Select "Temporary Internet files" and click the button.



9.4.5 New function or improved function cannot be used

Troubleshoot the problem as shown below if the new function or the improved function of the Ethernet adapter module cannot be used.

Checking	Action
Has the configuration tool of the Ethernet adapter module, on which the new function or the improved function is not installed, ever been started up?	<ul style="list-style-type: none"> • Write the parameters again using the configuration tool started from the Ethernet adapter module. (Do not use the configuration tool stored on the personal computer.) • Delete temporary Internet files from the Web browser, start the configuration tool, and write the parameters again.

9.4.6 Communication using SLMP cannot be performed

(1) Communication from an external device to an Ethernet adapter module

If communication cannot be performed with an external device using SLMP, refer to the troubleshooting section in the following manual.

 SLMP Reference Manual

(2) Communication from an Ethernet adapter module to an external device (on-demand function)

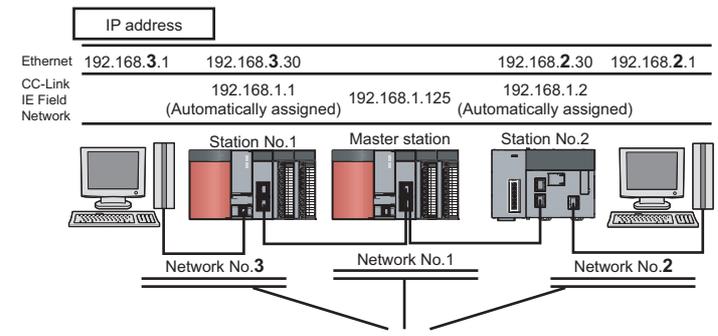
Refer to the following troubleshooting when communication cannot be performed using the on-demand function.

Checking	Action
Is the Ethernet adapter module supporting the on-demand function?	<ul style="list-style-type: none"> • Check that bit 0 of Function check area of the own station (buffer memory address: 48 (30_H)) is on. • Check that the first five digits of the serial No. of the Ethernet adapter module is 13012 or later. To perform broadcast communications, check that the first five digits of the serial No. is 14022 or later. ( Page 234, Appendix 11)
Have the setting data, send data, and send request instruction been written in On-demand function data sending area (buffer memory address: 1600 _H to 25FF _H)?	Check Device of the REMTO instruction completed (D, (D + 1)) that writes data in On-demand function data sending area and Completion status ((S1) + 0). If the REMTO instruction did not complete, find the error cause using the error code and take action to correct the problem. ( Page 157, Section 9.5)
Is connection being established with the SLMP compatible device when TCP/IP is used?	Request for connection from the external device. To send on-demand data, read Open completion signal (buffer memory address: 1500 _H to 1501 _H) using the REMFR instruction and check if the open is completed. Then issue a send request.
Is Send error bit of Send completed flag (buffer memory address: 1601 _H , 1A01 _H , 1E01 _H , 2201 _H) on?	Read Send completion flag and Completion code using the REMFR instruction. If Send error bit (bit 1) is on, find the error cause using the error code stored in Completion code (buffer memory address: 1602 _H , 1A02 _H , 1E02 _H , 2202 _H) and take action to correct the problem.
When on-demand data was sent the last time, was Send request bit of Send request flag turned off?	After writing 1 (ON) to Send request bit of Send request flag (buffer memory address: 1600 _H , 1A00 _H , 1E00 _H , 2200 _H) using the REMTO instruction, read the following areas: <ul style="list-style-type: none"> • Send completed flag (buffer memory address: 1601_H, 1A01_H, 1E01_H, 2201_H) • Completion code (buffer memory address: 1602_H, 1A02_H, 1E02_H, 2202_H) When Send completed bit or Send error bit of Send completed flag is turned on, write 0 (OFF) to Send request flag using the REMTO instruction.
Has the connection for users (1 to 32) been selected for Connection No. (buffer memory address: 1603 _H , 1A03 _H , 1E03 _H , and 2203 _H) upon broadcast communications?	Set "Auto-open UDP Port" for Connection No. (buffer memory address: 1603 _H , 1A03 _H , 1E03 _H , and 2203 _H) and issue a send request again. Broadcast communications can be used for UDP only.

9.4.7 Communications cannot be performed using the IP packet transfer function

Before troubleshooting the problem as listed below, execute the IP communication test and take corrective actions according to the error code. (☞ Page 121, Section 7.3.6)

If the problem cannot be solved using the IP communication test, execute the actions listed below.

Checking	Action
Does the Ethernet adapter module support the IP packet transfer function?	<ul style="list-style-type: none"> • Check that bit 1 of Function check area of the own station (buffer memory address: 48 (30H)) is on. • Check that the serial number (first five digits) of the Ethernet adapter module is 14022 or later. (☞ Page 234, Appendix 11)
When the IP address of the Ethernet adapter module (Ethernet part) is the same as the network address of the master station, is the IP address (the third and fourth octets) of the external device and Ethernet adapter module (Ethernet part) within the setting range?	<ul style="list-style-type: none"> • Set the IP address that meets the rules described on Page 106, Section 7.3.1 (1) in the external device and Ethernet adapter module (Ethernet part). • Change the IP address of CC-Link IE Field Network in the master station so that the IP address of the external device and Ethernet adapter module (Ethernet part) differs from the network address of the master station.
Is the IP address already in use?	<ul style="list-style-type: none"> • For the external device, set the IP address different from that of other devices on the network, such as a CPU module, master/local module, and Ethernet adapter module. • Disconnect the external device from the line and execute the Ping command to the IP address of the disconnected external device. If a response is received even though the external device is disconnected, the IP address is already in use. Change the IP address.
Has a timeout error occurred in the IP communication test?	Check "Relay Network No." in the routing parameters of the master station and local stations.
Have the routing parameters correctly been set in the master station and local stations?	<ul style="list-style-type: none"> • Check and correct the routing parameters of the master station and local stations. • When the first and second octets of the IP address are the same for the request source external device, request destination external device, and modules between them, set the routing parameters so that the third octet of the IP address of the external device is used as "Target Network No." • If a timeout error occurs in the IP communication test, enter the IP address in the order of station from the closest to the device where the IP communication test was executed. Repeat the test until which station can or cannot receive communications to identify the error. (☞ Page 123, Section 7.3.6 (2) (b)) <p>If the station causing the error is found, check and correct the settings.</p>
Is the network number of the external device side (the third octet of the IP address) the same as that of modules and another external device? (This applies only when the request source external device, request destination external device, and modules between them have the same first and second octets of the IP address.)	<p>Change the network number of the external device side (the third octet of the IP address) to the one different from that of modules and another external device.</p>  <p>Change the network numbers to those not used for other stations.</p>

Checking	Action
Is the CC-Link IE Field Network gateway setting correct? (This applies only when the request source external device, request destination external device, and modules between them do not have the same first and second octets of the IP address.)	<ul style="list-style-type: none"> • Check and correct the CC-Link IE Field Network gateway setting. • Use the routing parameters of the master station and local stations to set the communication route to the CC-Link IE Field Network gateway setting station.
Has the gateway setting been configured in the external device? (Even if the IP communication test is normally completed, IP communications cannot be performed without the gateway setting configured on the external device.)	<p>Execute one of the following actions to configure the gateway setting in the external device:</p> <ul style="list-style-type: none"> • Set the IP address of the Ethernet adapter module (Ethernet part) in the gateway setting of the external device. • Set the communication route on the external device side using the route command so that communications can be transmitted to the external device through the Ethernet adapter module. (This applies only to external devices that have the route command, such as Microsoft® Windows®.) <p>When the gateway setting is completed, execute the Ping command from the external device to check whether communications can be performed.</p>
Is the firewall enabled on the external device?	<p>Check and correct the firewall settings on the external device.</p> <p>Ex.</p> <p>Is a response to the Ping command (ICMP echo request) enabled?</p>
Is the antivirus software on the external device blocking the communications?	<p>Check and correct the antivirus software settings on the external device.</p> <p>Ex.</p> <ul style="list-style-type: none"> • Is the security setting level of the antivirus software low? • Is a response to the Ping command (ICMP echo request) enabled in the firewall settings?
When the external device has two or more Ethernet ports, have different default gateway settings been configured for each Ethernet port?	<ul style="list-style-type: none"> • Set the same IP address in the default gateway of each Ethernet port. • Set the communication route on the external device side using the route command so that communications can be transmitted to the external device through the Ethernet adapter module. (This applies only to external devices that have the route command, such as Microsoft® Windows®.) <p>When the gateway setting is completed, execute the Ping command from the external device to check whether communications can be performed.</p>
Is the switching hub normal?	<ul style="list-style-type: none"> • If an error has occurred in the switching hub, remove the error. • If communications cannot be performed although no error has occurred in the switching hub, replace the switching hub.*1
Has any device on the line, such as an external device, CPU module, Ethernet adapter module, and switching hub, been replaced? (This applies only when the device has been replaced by the one having the same IP address.)	<p>Reset the device on the line.*2</p>

*1 When the device has been reconnected to the switching hub, or the switching hub has been replaced, it may take some time to read the MAC address. If so, retry communications from the external device again after a while or power on the switching hub again.

*2 A device on Ethernet has a table of IP addresses and their corresponding MAC address, called "ARP cache". When a device on the line is replaced by the one having the same IP address, the MAC address in the ARP cache is different from that of the replaced device; therefore, communications may not be normally performed. The ARP cache is updated by resetting the device or after a while. The time varies depending on the device.

9.5 Error Code List

This section describes error message, error conditions, causes, and solutions for respective error codes of the Ethernet adapter module.

Error codes can be viewed in the CC-Link IE Field Network diagnostics of GX Works2. (☞ Page 141, Section 9.2.1)

Error codes, each of which is stored in the buffer memory of the Ethernet adapter module, are classified as shown below.

Error code	Classification	Reference
0000 _H to 07FF _H	<ul style="list-style-type: none"> • Error codes that are generated in data communication with external devices • End codes that are returned to external devices in SLMP communication 	Page 158, Section 9.5 (1)
0800 _H to 2AC4 _H	Error codes of the Ethernet adapter module	Page 163, Section 9.5 (2)
4000 _H to 4FFF _H	Error codes that are generated in other modules during transient transmission	Page 166, Section 9.5 (3)
7000 _H to 7FFF _H		
B000 _H to BFFF _H		
C000 _H to CFFF _H		
D000 _H to DFFF _H	Error codes of the CC-Link IE Field Network	Page 166, Section 9.5 (4)
E000 _H to EFFF _H	Error codes that are generated in other modules during transient transmission	Page 174, Section 9.5 (5)
F000 _H to FFFF _H		

(1) Error code list (0000_H to 07FF_H)

The following describes the error messages, error conditions, causes and actions of the error codes (0000_H to 07FF_H).

Point

If an error occurred, after taking action, clear the error.

For the Ethernet adapter module, use an SLMP command, Clear Error (command: 1617).

End code or error code	Error and cause	Action
0100 _H	System error	Please consult your local Mitsubishi representative.
0101 _H to 0103 _H	Network module failure	<ul style="list-style-type: none"> Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. Perform a unit test. If the same error is displayed again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
0104 _H	Receive queue full	<ul style="list-style-type: none"> Reduce the frequency of transient transmission and then retry the operation. Check if the cables and switching hub are connected properly.
0105 _H	Network module failure	<ul style="list-style-type: none"> Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. Perform a unit test. If the same error is displayed again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
0106 _H to 0109 _H	Parameter error	Write the parameters again. If the same error is displayed again, please consult your local Mitsubishi representative.
010A _H	Parameter check result error	
010B _H to 010C _H	System error	<ul style="list-style-type: none"> Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. Perform a unit test. If the same error is displayed again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
010D _H	Ethernet adapter module failure	Restart the Ethernet adapter module. If the same error is displayed again, please consult your local Mitsubishi representative.
010E _H	Ethernet adapter module stop error	<ul style="list-style-type: none"> Check the description in "CC-Link IE Field Network Error" in the "Ethernet Adapter Diagnostics" window of the configuration tool, and take action. Perform the CC-Link IE Field Network diagnostics from the master station, identify the error and take action. Write the parameters again. If the same error is displayed again, please consult your local Mitsubishi representative.
0180 _H	Sum check code error	Write the parameters again. If the same error is displayed again, please consult your local Mitsubishi representative.
0181 _H	Start block code error	
0182 _H	End block code error	
0183 _H	Operation setting parameter error	
0184 _H	Initial setting parameter error	
0185 _H	Connection setting parameter error	
0186 _H	Account setting parameter error	
0187 _H	CC-Link IE Field Network gateway setting error	

End code or error code	Error and cause	Action
0188 _H	No IP address distribution	An IP address is not distributed to the Ethernet adapter module (CC-Link IE Field Network part). Take the following actions to distribute an IP address. <ul style="list-style-type: none"> • Set an IP address to the master station. • Use a master station that supports the IP packet transfer function. <p>After taking the actions above, check that baton pass becomes enabled. Then execute the IP communication test again. The baton pass status can be checked using Baton pass status (own station) (SB0047, SW0047).</p>
0189 _H	No CC-Link IE Field Network gateway setting	<ul style="list-style-type: none"> • Check that the CC-Link IE Field Network gateway setting is configured and is correct in the Ethernet adapter module. • Check the IP address of the master station. <p>Take the actions above then execute the IP communication test again.</p>
018A _H	CC-Link IE Field Network gateway setting error	The own station cannot be set for "CC-Link IE Field Network Gateway Setting Station" and "CC-Link IE Field Network Default Gateway Setting Station" in the CC-Link IE Field Network gateway setting. Set the station where IP packets arrive last on the CC-Link IE Field Network.  Page 187, Section 10.3.2 (1))
018B _H	IP communication test communication target setting error	The connected station (own station) cannot be set for "Communication Target" in the IP communication test. Change the setting configured in "Communication Target".
018C _H	IP address out of range (Ethernet part of the Ethernet adapter module on the own station)	<ul style="list-style-type: none"> • When the IP address of the Ethernet adapter module (Ethernet part) is the same as the network address of the master station, set the IP address of the Ethernet adapter module (Ethernet part) within the following range. <ul style="list-style-type: none"> • Third octet: 1 to 239 • Fourth octet: 1 to 120 • Change the IP address of the CC-Link IE Field Network in the master station so that the IP address of the Ethernet adapter module (Ethernet part) may differ from the network address of the master station.
018D _H	IP address out of range (external device on the destination)	<ul style="list-style-type: none"> • When the IP address of the external device on the destination is the same as the network address of the master station, set the IP address of the external device within the following range. <ul style="list-style-type: none"> • Third octet: 1 to 239 • Fourth octet: 1 to 120, 125 • Change the IP address of the CC-Link IE Field Network in the master station so that the IP address of the external device may differ from the network address of the master station.
0200 _H	UDP send error	<ul style="list-style-type: none"> • Check and correct the status of the cable connection and line. • When using the on-demand function, check that the IP address of the destination is correct. • When using the on-demand function, check that the connection No. for users for UDP has not been selected in the protocol setting.
0201 _H	TCP send error	<ul style="list-style-type: none"> • Check and correct the status of the cable connection and line. • When using the on-demand function, check the open status of the connection.
0202 _H	UDP receive error	Check and correct the status of the cable connection and line.
0203 _H	TCP receive error	
0204 _H	TCP receive wait error	
0205 _H	Parameter error (An error in connection parameters)	
0206 _H	Socket creation error	Restart the Ethernet adapter module. If the same error is displayed again, please consult your local Mitsubishi representative.
0207 _H	Incorrect option setting for freeing the memory in closing	
0208 _H	Incorrect option setting for port reuse	
0209 _H	Socket naming error	
020A _H	Socket control error	
020B _H	Socket wait setting error	
020C _H	Socket deletion error	
020D _H	Connected socket deletion error	

End code or error code	Error and cause	Action
020E _H	List full	<ul style="list-style-type: none"> Reduce the frequency of SLMP or transient transmission and then retry the operation. When the mode of the master station is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation. Check if the cables and switching hub are connected properly.
020F _H	System error	Restart the Ethernet adapter module. If the same error is displayed again, please consult your local Mitsubishi representative.
0210 _H	System error	
0211 _H	System error	
0212 _H	System error	
0280 _H to 0282 _H	System error	
0300 _H	Send buffer full	<ul style="list-style-type: none"> Reduce the frequency of SLMP or transient transmission and then retry the operation. When the mode of the master station is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation. Check if the cables and switching hub are connected properly.
0301 _H	Address specification error	Correct the specified read or write address at the SLMP or transient request source, and retry the operation.
0302 _H	Network No. error	Confirm the network number at the SLMP or transient request source, and retry the operation.
0303 _H	Target station No. error	<ul style="list-style-type: none"> Correct the target station number at the transient request source, and retry the operation. Correct the station number at the SLMP request source, and retry the operation.
0304 _H	Network No. error	Confirm the network number at the SLMP or transient request source, and retry the operation.
0305 _H	Incorrect number of relays	<ul style="list-style-type: none"> Correct the system configuration to reduce the number of relay stations to seven or less. Check if the routing parameters are correctly set, and take corrective action.
0306 _H	Network No. error	Confirm the network number at the SLMP or transient request source, and retry the operation.
0307 _H	Target station No. error	<ul style="list-style-type: none"> Correct the target station number at the transient request source, and retry the operation. Correct the station number at the SLMP request source, and retry the operation.
0308 _H	Target station No. error	Correct the target station number at the transient request source, and retry the operation.
0309 _H	Transmission completion timeout error	<ul style="list-style-type: none"> If an error was detected, identify the cause of the error and take action. Reduce the frequency of SLMP or transient transmission and then retry the operation. Check if the Ethernet port side cable and the switching hub are connected properly.
030A _H	Header information error	Retry the transient transmission.
030B _H	Target station No. error	<ul style="list-style-type: none"> Check the command at the transient request source to see if it is available for all stations, and retry the operation. Do not use group specification when making a request to the Ethernet adapter module.
030C _H	System error	Please consult your local Mitsubishi representative.
030D _H	Transmission failed	<ul style="list-style-type: none"> Check if the cable on the Ethernet part and the switching hub are connected properly. Reduce the frequency of transient transmission and then retry the operation. Restart the Ethernet adapter module. If the same error is displayed again, please consult your local Mitsubishi representative.
030E _H	Request message error	Correct the request command at the SLMP or transient request source, and retry the operation.
030F _H	Request message error	Retry the transient transmission.

End code or error code	Error and cause	Action
0310 _H	Data length error	<ul style="list-style-type: none"> • Correct the read or write data length. • When the read or write data length is too long, divide it into parts for a command request.
0311 _H	Request message error	Retry the transient transmission.
0312 _H	Target station No. error	
0313 _H	Target station No. error	Correct the request command at the transient request source, and retry the operation.
0314 _H	System error	Please consult your local Mitsubishi representative.
0315 _H	IP communication test in progress	Retry the IP communication test after a while. (Up to four IP communication tests can be concurrently executed.)
0316 _H	IP communication test execution error (no response to Ping)	<ul style="list-style-type: none"> • Check "Communication Target" in the "IP Communication Test" dialog box. • Check and correct the status of the cable connection and line between the CC-Link IE Field Network gateway setting station and the communication destination. • Enable a response to the Ping command (ICMP echo request) in the firewall settings on the external device or antivirus software.
0380 _H	Request source ID error	Restart the Ethernet adapter module. If the same error is displayed again, please consult your local Mitsubishi representative.
0381 _H	Receive error	When the receiving station encountered overloading of transient data, send the data from the source after a given time has elapsed.
0382 _H	Receive queue full	
0383 _H	Send error	Reduce the frequency of transient transmission and then retry the operation.
0384 _H	System error	Please consult your local Mitsubishi representative.
0400 _H	ASCII conversion error	<ul style="list-style-type: none"> • Set "Binary Code" in the configuration tool, and restart the Ethernet adapter module to start communication. • Correct the data sent from the external device. • Correct the setting for the subcommand. • Check the device settings.
0401 _H	Word device read/write size error	Correct the number of read or write points, and send the data to the Ethernet adapter module again.
0402 _H	Bit device read/write size error	
0403 _H	Random read/write bit device size error	
0404 _H	Random read/write word device size error	
0405 _H	File size error	Correct the number of read or write points (or bytes), and send the data to the Ethernet adapter module again.
0406 _H	Address range error	Correct the start address or the number of read or write points, and send the data to the Ethernet adapter module. (Do not exceed the maximum address number.)
0407 _H	Unsupported command	Check and correct the request data.
0408 _H	Device name error	Correct the device, and read or write the device again.
0409 _H	Unsupported device specified	
040A _H	Device access type error	Correct the request data (e.g. the subcommand), and send them to the Ethernet adapter module again.
040B _H	Unregistered monitoring	Register the monitoring data before start monitoring.
040C _H	Response monitoring timer timeout	<ul style="list-style-type: none"> • Increase the monitoring timer value. • Check if the Ethernet adapter module is operating properly. • Correct the network or station number. • If a station with another network number is set as the destination, correct the routing parameter value. • If a station with another network number is set as the destination, check the network number for duplication. • Confirm the IP address. (☞ Page 189, Section 10.3.3)
040D _H	ACK error	<ul style="list-style-type: none"> • Correct the network or station number. • Correct the I/O number of the target module. • Correct the read or write request data.

End code or error code	Error and cause	Action
040E _H	Request data error	Correct the request data, and send them to the Ethernet adapter module again.
040F _H	Online change of Q series remote I/O disabled	To write data to a remote I/O station by MC protocol (QnA compatible 3E frame or 4E frame), set the online change function to "Enable" in the operation setting.
0410 _H	Data length error	Check and correct the text or the request data length in the Qn header, and send the data to the Ethernet adapter module again.
0411 _H	Block size error	Correct the specified number of blocks.
0412 _H	Bit device specification error	Correct the subcommand value.
0413 _H	File name size error	Change the number of characters for the file name to 255 or less.
0414 _H	Device No. error	Correct the specified device No. value.
0415 _H	File name size error	Change the number of characters for the file name to 255 or less.
0416 _H	Online change error	Stop the Ethernet adapter module and write the data.
0417 _H to 041C _H	System error	Please consult your local Mitsubishi representative.
0420 _H	Connection No. error	Correct the connection No. set in the on-demand function.
0421 _H	Frame setting format error	Correct the frame setting format set in the on-demand function.
0422 _H	Communication data code specification error	Correct the communication data code specification set in the on-demand function.
0423 _H	Destination IP address error	Correct the destination IP address set in the on-demand function.
0424 _H	Destination port No. error	Correct the destination port No. set in the on-demand function.
0425 _H	Send data format error	Correct the send data format used in the on-demand function.
0426 _H	Send data length error	Correct the send data length used in the on-demand function.
0600 _H to 0601 _H	System error	Please consult your local Mitsubishi representative.
0640 _H to 0645 _H		
0680 _H to 0688 _H		
0700 _H to 0702 _H		
0703 _H to 0704 _H	System error	Restart the Ethernet adapter module. If the same error is displayed again, please consult your local Mitsubishi representative.
0710 _H to 0711 _H		

(2) Error code list (0800_H to 2AC4_H)

The following lists the error messages, error conditions, causes, and actions of the error codes (0800_H to 17FF_H).

The "■Supplementary information" in the "Error and cause" column can be confirmed by any of the following.

- Common error information (SD5 to SD15)
- Individual error information (SD16 to SD26)

Error code	Error and cause	Action	LED status
0800 _H	[ADAPTER UNIT DOWN] The Ethernet adapter module is running away or faulty. <ul style="list-style-type: none"> • Malfunction due to noise • Hardware failure ■Supplementary information <ul style="list-style-type: none"> • Common information: - • Individual information: - ■Diagnostic timing <ul style="list-style-type: none"> • Any time 	Take action against noise, and reset the module. If this error occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On
0801 _H			
0802 _H			
0803 _H			
0804 _H			
0805 _H			
0806 _H			
0809 _H	[ADAPTER UNIT DOWN] The power supply part or the Ethernet adapter module is faulty. ■Supplementary information <ul style="list-style-type: none"> • Common information: - • Individual information: - ■Diagnostic timing <ul style="list-style-type: none"> • Any time 	Reset the Ethernet adapter module. If the same error is displayed again, the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On
0823 _H	[ADAPTER UNIT DOWN] The Ethernet adapter module is running away or faulty. <ul style="list-style-type: none"> • Malfunction due to noise • Hardware failure ■Supplementary information <ul style="list-style-type: none"> • Common information: - • Individual information: - ■Diagnostic timing <ul style="list-style-type: none"> • Any time 	Take action against noise, and reset the module. If this error occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On
085A _H	[ADAPTER UNIT DOWN] The Ethernet adapter module is running away or faulty. <ul style="list-style-type: none"> • Malfunction due to noise • Hardware failure ■Supplementary information <ul style="list-style-type: none"> • Common information: - • Individual information: Breakdown information ■Diagnostic timing <ul style="list-style-type: none"> • Any time 		
0865 _H	[RAM ERROR] The RAM built in the Ethernet adapter module is faulty. ■Supplementary information <ul style="list-style-type: none"> • Common information: - • Individual information: - ■Diagnostic timing <ul style="list-style-type: none"> • When powered on or reset 	Take action against noise, and reset the module. If this error occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On
0866 _H			
0867 _H			
0868 _H			
08A1 _H	[RAM ERROR] The data in the device memory built in the Ethernet adapter module were overwritten. ■Supplementary information <ul style="list-style-type: none"> • Common information: - • Individual information: - ■Diagnostic timing <ul style="list-style-type: none"> • Any time 		

Error code	Error and cause	Action	LED status
0991 _H	<p>[ADAPTER UNIT DOWN]</p> <ul style="list-style-type: none"> The buffer memory size of the Ethernet part is abnormal. No response is returned from the Ethernet part. <p>■Supplementary information</p> <ul style="list-style-type: none"> Common information: - Individual information: - <p>■Diagnostic timing</p> <ul style="list-style-type: none"> When powered on or reset 	The hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On
0993 _H	<p>[ADAPTER UNIT DOWN]</p> <ul style="list-style-type: none"> No response is returned from the Ethernet part. Failure of the Ethernet part was detected. <p>■Supplementary information</p> <ul style="list-style-type: none"> Common information: - Individual information: - <p>■Diagnostic timing</p> <ul style="list-style-type: none"> Any time 		
09F4 _H	<p>[DC DOWN]</p> <ul style="list-style-type: none"> Momentary supply power failure occurred. The supply power turned off. <p>■Supplementary information</p> <ul style="list-style-type: none"> Common information: - Individual information: - <p>■Diagnostic timing</p> <ul style="list-style-type: none"> Any time 	Check the supply power.	RUN: On ERR.: Off
0A62 _H	<p>[FLASH ROM ERROR]</p> <p>The number of writes to the parameter memory exceeded 100,000 times. (Number of writes > 100,000)</p> <p>■Supplementary information</p> <ul style="list-style-type: none"> Common information: - Individual information: - <p>■Diagnostic timing</p> <ul style="list-style-type: none"> When writing data to ROM 	Replace the Ethernet adapter module.	RUN: On ERR.: On
0ABC _H	<p>[BUS TIMEOUT ERR.]</p> <p>Failure of the system bus was detected.</p> <ul style="list-style-type: none"> Self-diagnostic error of the system bus Self-diagnostic error of the Ethernet adapter module <p>■Supplementary information</p> <ul style="list-style-type: none"> Common information: - Individual information: - <p>■Diagnostic timing</p> <ul style="list-style-type: none"> Any time 	Reset the Ethernet adapter module. If this error occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On
0AC6 _H	<p>[UNIT BUS ERROR]</p> <p>Failure of the system bus was detected.</p> <p>■Supplementary information</p> <ul style="list-style-type: none"> Common information: - Individual information: - <p>■Diagnostic timing</p> <ul style="list-style-type: none"> Any time 		
0ADA _H	<p>[SYSTEM RST ERR.]</p> <p>Failure of the system bus was detected.</p> <p>■Supplementary information</p> <ul style="list-style-type: none"> Common information: - Individual information: - <p>■Diagnostic timing</p> <ul style="list-style-type: none"> When powered on or reset 	Reset the Ethernet adapter module. If this error occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On
0C10 _H	<p>[UNIT HW ERROR]</p> <p>Hardware failure was detected.</p> <p>■Supplementary information</p> <ul style="list-style-type: none"> Common information: - Individual information: - <p>■Diagnostic timing</p> <ul style="list-style-type: none"> Any time 	Reset the Ethernet adapter module. If this error occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On

Error code	Error and cause	Action	LED status
0C65 _H	<p>[SP.UNIT LAY ERR.] Hardware failure inside the Ethernet adapter module was detected.</p> <p>■ Supplementary information</p> <ul style="list-style-type: none"> • Common information: Module No. (slot No.) • Individual information: - <p>■ Diagnostic timing</p> <ul style="list-style-type: none"> • When powered on or reset 	The hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On
0C92 _H	<p>[SYSTEM LAY ERR.] Hardware failure inside the Ethernet adapter module was detected.</p> <p>■ Supplementary information</p> <ul style="list-style-type: none"> • Common information: - • Individual information: - <p>■ Diagnostic timing</p> <ul style="list-style-type: none"> • When powered on or reset 	The hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On
0FD1 _H	<p>[PARAMETER ERROR] Parameters are corrupted.</p> <p>■ Supplementary information</p> <ul style="list-style-type: none"> • Common information: File name • Individual information: Parameter No. <p>■ Diagnostic timing</p> <ul style="list-style-type: none"> • When powered on or reset, or when parameters are written 	Write the parameters to the Ethernet adapter module again. If the same error is displayed again, the memory in the Ethernet adapter module is in failure. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On
0FD4 _H	<p>[PARAMETER ERROR] The parameter file is incorrect. Or, the contents of the file are not parameters.</p> <p>■ Supplementary information</p> <ul style="list-style-type: none"> • Common information: File name • Individual information: Parameter No. <p>■ Diagnostic timing</p> <ul style="list-style-type: none"> • When powered on or reset, or when parameters are written 	Check if the type of the parameter file is shown as "****.QPA" and if the file contains parameters.	RUN: Flashing ERR.: On
1038 _H	<p>[LINK PARA. ERROR] The network No. of the CC-Link IE Field Network is the same as the third octet value of the IP address. Or, parameters are corrupted.</p> <p>■ Supplementary information</p> <ul style="list-style-type: none"> • Common information: File name • Individual information: Parameter No. <p>■ Diagnostic timing</p> <ul style="list-style-type: none"> • When powered on or reset 	Correct the parameters and write them to the Ethernet adapter module again. If this error occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Flashing ERR.: On
17A0 _H	<p>[WDT ERROR] The watchdog timer timed out.</p> <p>■ Supplementary information</p> <ul style="list-style-type: none"> • Common information: Time (200ms) • Individual information: Time (value actually measured) 	Take measures on the power supply system to prevent momentary power failure, and reset the module. If this error occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.	RUN: Off ERR.: On
17A1 _H	<p>■ Diagnostic timing</p> <ul style="list-style-type: none"> • Any time 		
2AC4 _H	<p>[NETWORK ERROR] A CC-Link IE Field Network error has occurred.</p> <p>■ Supplementary information</p> <ul style="list-style-type: none"> • Common information:- • Individual information:- <p>■ Diagnostic timing</p> <ul style="list-style-type: none"> • Any time 	<ul style="list-style-type: none"> • Perform the CC-Link IE Field Network diagnostics from the master station to check the network status. Then take action to correct the problem. • Check the network's error code of the error that occurred at the same time using the error history of the CC-Link IE Field Network diagnostics from the master station. 	RUN: On ERR.: On

(3) Error code list (4000_H to 4FFF_H, 7000_H to 7FFF_H, and B000_H to CFFF_H)

The following lists the error messages, error conditions, causes, and actions of the error codes (4000_H to 4FFF_H, 7000_H to 7FFF_H, and B000_H to CFFF_H).

Error code	Error	Action
4000 _H to 4FFF _H	Errors that may be detected by a CPU module	Refer to the error code list in the user's manual (hardware design, maintenance and inspection) for the CPU used.
7000 _H to 7FFF _H	Errors that may be detected by a serial communication module	Refer to the serial communication module user's manual.
B000 _H to BFFF _H	Errors that may be detected by a CC-Link module	Refer to the CC-Link system master/local module user's manual.
C000 _H to CFFF _H	Errors that may be detected by an Ethernet module	Refer to the error code list in the Ethernet interface module user's manual.

(4) Error code list (D000_H to DFFF_H)

The following lists the error messages, error conditions, causes, and actions of the error codes (D000_H to DFFF_H).

Error code	Error	Action
D038 _H	No corresponding station (IP communication test)	If the own station, target station, or relay station is disconnected from the network, identify the cause of the disconnection and take action.
D039 _H	IP packet transfer function not supported (IP communication test)	Check the first five digits of the serial number of the module on the station on the route next to the faulty station. If the module does not support the used function, replace it with the module with the latest version.
D0A0 _H	Transient data transmission response wait timeout	<ul style="list-style-type: none"> • If the originating station or the target station is disconnected from the network, identify the cause of the disconnection and take action. • When the mode of the master station is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation. • When the receiving station encountered overloading of transient data, reduce the frequency of transient transmission and then retry the operation.
D0A1 _H	Transient data transmission completion wait timeout	<ul style="list-style-type: none"> • Check if the cables and switching hub are connected properly. • Exchange the cables between PORT1 and PORT2 and retry the operation. • Reduce the frequency of transient transmission and then retry the operation. • Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
D0A2 _H	Transient data transmission processing wait timeout	<ul style="list-style-type: none"> • Reduce the frequency of transient transmission and then retry the operation. • Check if the cable of the request source and the switching hub are connected properly.
D0A3 _H	Transient data transmission error	<ul style="list-style-type: none"> • If the originating station or the target station is disconnected from the network, identify the cause of the disconnection and take action. • Correct the target station number of the transient data, and retry the operation.

Error code	Error	Action
D0A4 _H to D0A6 _H	Transient transmission failed	<ul style="list-style-type: none"> • Check if the cables and the switching hub are connected properly. • Exchange the cables between PORT1 and PORT2 and retry the operation. • Reduce the frequency of transient transmission and then retry the operation.
D0A7 _H	Transient reception failed	<ul style="list-style-type: none"> • Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
D0E0 _H	Station type mismatch	In Network Configuration Setting of the master station, change the station type of the Ethernet adapter module to intelligent device station.
D0E1 _H	Own station specified as reserved	<ul style="list-style-type: none"> • In Network Configuration Setting of the master station, cancel the reserved station setting. • Change the station number of the Ethernet adapter module to a station number that is not reserved.
D0E2 _H	Station No. duplication (own station)	<ul style="list-style-type: none"> • Change the station number so that it will not duplicated with any other station number. • After taking the above action, power off and then on all of the stations that detected the station number duplication error, or reset them.
D0E3 _H	Own station No. out of range	Add station information of the Ethernet adapter module to Network Configuration Setting of the master station.
D200 _H	Double transient data received	<ul style="list-style-type: none"> • From the master station, check the network condition by CC-Link IE Field Network diagnostics of GX Works2, and take action. • Check if the cables and switching hub are connected properly. • If the request source resides in another network, check if the routing parameters are correctly set, and take corrective action.
D201 _H	Header information error in transient data	Correct the header information at the transient request source, and retry the operation.
D202 _H	Send buffer full	<ul style="list-style-type: none"> • Reduce the frequency of transient transmission and then retry the operation. • When the mode of the master station is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation. • Check if the cables and switching hub are connected properly.
D203 _H	Read/write address error in transient data	Correct the read or write address at the transient request source, and retry the operation.
D204 _H	Network No. error in transient data	<ul style="list-style-type: none"> • Check and correct the network number at the transient request source, and retry the operation. • If the request source resides in another network, check if the routing parameters are correctly set, and take corrective action.
D205 _H	Target station No. error in transient data	Correct the target station number at the transient request source, and retry the operation.
D206 _H	Network No. error in transient data	<ul style="list-style-type: none"> • Check and correct the network number at the transient request source, and retry the operation. • If the request source resides in another network, check if the routing parameters are correctly set, and take corrective action.
D207 _H	Incorrect number of relays specified in transient data	<ul style="list-style-type: none"> • Correct the system configuration to reduce the number of relay stations to seven or less. • Check if the routing parameters are correctly set, and take corrective action.
D208 _H	Network No. error in transient data	<ul style="list-style-type: none"> • Check and correct the network number at the transient request source, and retry the operation. • If the request source resides in another network, check if the routing parameters are correctly set, and take corrective action.

Error code	Error	Action
D209 _H to D20A _H	Target station No. error in transient data	Check and correct the target station number at the transient request source, and retry the operation.
D20B _H	Specified master station No. error in transient data	
D20C _H	Current master station No. error in transient data	
D20D _H	Transient data transmission completion wait timeout	<ul style="list-style-type: none"> • From the master station, check the network condition by CC-Link IE Field Network diagnostics of GX Works2, and take action. • If the originating or target station has detected an error, identify the cause of the error and take action. • Reduce the frequency of transient transmission and then retry the operation. • When the mode of the master station is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation. • Check if the cable of the request source and the switching hub are connected properly.
D20E _H	Header information error in transient data	Correct the header information at the transient request source, and retry the operation.
D20F _H	Target station No. error in transient data	Check the command at the transient request source to see if it is available for all stations or a group, and retry the operation.
D210 _H	Target station No. error in transient data	Correct the header information at the transient request source, and retry the operation.
D211 _H	Own station No. undefined (dedicated instruction)	Set the station number in the parameter setting, and retry the operation.
D212 _H	Transient transmission failed	<ul style="list-style-type: none"> • Check if the cable of the request source and the switching hub are connected properly. • Exchange the cables between PORT1 and PORT2 and retry the operation. • Reduce the frequency of transient transmission and then retry the operation.
D213 _H	Transient data request error	Correct the request command at the transient request source, and retry the operation.
D214 _H	Transient data request error	Correct the data size at the transient request source, and retry the operation.
D216 _H to D217 _H	Transient data request error	Correct the request command at the transient request source, and retry the operation.
D218 _H	Transient data request error	Correct the size of the device read/write data at the transient request source, and retry the operation.
D219 _H	Transient data request error	Correct the attribute code at the transient request source, and retry the operation.
D21A _H	Transient data request error	Correct the access code at the transient request source, and retry the operation.
D21B _H to D21C _H	Ethernet adapter module request error	<ul style="list-style-type: none"> • Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. • Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
D21D _H	Network No. error in transient data	Transient data that are not executable for different networks were received. Correct the network number or the target station number at the transient request source, and retry the operation.
D21E _H	Target station No. error in transient data	The received transient data of the application type cannot be handled by the own station. Correct the application type or the target station number at the transient request source, and retry the operation.

Error code	Error	Action
D21F _H	Target station type error (dedicated instruction)	The SEND instruction is not executable for the Ethernet adapter module. Modify the master and local station programs so that the SEND instruction will not be used.
D222 _H	Transient data request error	Correct the request command at the transient request source, and retry the operation.
D236 _H	IP data TTL error	Correct the TTL at the IP request source and retry the operation.
D237 _H	IP address setting error	Correct the IP address of the master station (submaster station) and retry the operation.
D247 _H	Double dedicated instructions received	<ul style="list-style-type: none"> From the master station, check the network condition by CC-Link IE Field Network diagnostics of GX Works2, and take action. Check if the cable of the request source and the switching hub are connected properly. If the request source resides in another network, check if the routing parameters are correctly set, and take corrective action.
D280 _H	Transient data request error	Correct the request command at the transient request source, and retry the operation.
D281 _H	Transient reception failed	<ul style="list-style-type: none"> From the master station, check the network condition by CC-Link IE Field Network diagnostics of GX Works2, and take action. When the receiving station encountered overloading of transient data, send the data from the source after a given time has elapsed.
D282 _H	Receive queue full	<ul style="list-style-type: none"> From the master station, check the network condition by CC-Link IE Field Network diagnostics of GX Works2, and take action. When the receiving station encountered overloading of transient data, send the data from the source after a given time has elapsed.
D283 _H	Transient transmission failed	<ul style="list-style-type: none"> From the master station, check the network condition by CC-Link IE Field Network diagnostics of GX Works2, and take action. Exchange the cables between PORT1 and PORT2 at the request source and retry the operation. Reduce the frequency of transient transmission and then retry the operation.
D2A0 _H	Receive buffer full	<ul style="list-style-type: none"> From the master station, check the network condition by CC-Link IE Field Network diagnostics of GX Works2, and take action. When the receiving station encountered overloading of transient data, send the data from the source after a given time has elapsed.
D2A1 _H	Send buffer full	<ul style="list-style-type: none"> Reduce the frequency of transient transmission and then retry the operation. Check if the cable of the request source and the switching hub are connected properly.
D2A2 _H	Transmission completion wait timer timeout	<ul style="list-style-type: none"> Reduce the frequency of transient transmission and then retry the operation. Check if the cable of the request source and the switching hub are connected properly.
D2A3 _H	Data length error in transient data	Correct the data size (frame length) at the transient request source, and retry the operation.
D2A4 _H	Header information error in transient data	Correct the header information at the transient request source, and retry the operation.
D2A5 _H	Target station No. error in transient data	Correct the target station number at the transient request source, and retry the operation.
D2A6 _H	Transient data request source No. error	Correct the request source number at the transient request source, and retry the operation.
D2A7 _H to D2A8 _H	Header information error in transient data	Correct the header information at the transient request source, and retry the operation.
D2A9 _H	Target network No. error in transient data	Correct the target network number at the transient request source, and retry the operation.

Error code	Error	Action
D2AA _H	Target station No. error in transient data	Correct the target station number at the transient request source, and retry the operation.
D2AB _H	Network No. error in transient data	Correct the request source network number at the transient request station, and retry the operation.
D2AC _H	Transient data request source No. error	Correct the request source station number at the transient request station, and retry the operation.
D2AD _H	Data length error in transient data	Correct the data size (frame length) at the transient request station, and retry the operation.
D2AE _H	Target station No. error in transient data	<ul style="list-style-type: none"> The Ethernet adapter module received transient data addressed to a different network. Check the network and target station numbers, and retry the operation. Check if the routing parameters are correctly set.
D2AF _H	Target station No. error in transient data	<ul style="list-style-type: none"> Transient data addressed to the own station were sent. Check the network and target station numbers, and retry the operation. Check if the routing parameters are correctly set.
D2B0 _H	Transient transmission failed	<ul style="list-style-type: none"> Check if the cable of the request source and the switching hub are connected properly. Exchange the cables between PORT1 and PORT2 at the request source and retry the operation. Reduce the frequency of transient transmission and then retry the operation.
D2E0 _H	IP communication test in progress	Retry the IP communication test after a while. (Up to four IP communication tests can be concurrently executed.)
D2E1 _H	IP communication test execution error (no response to Ping)	<ul style="list-style-type: none"> Check "Communication Target" in the "IP Communication Test" dialog box. Check and correct the status of the cable connection and line between the CC-Link IE Field Network gateway setting station and the communication destination. Enable a response to the Ping command (ICMP echo request) in the firewall settings on the external device or antivirus software.
D2E2 _H	No IP address distribution	<p>An IP address is not distributed to the destination Ethernet adapter module (CC-Link IE Field Network part). Take the following actions to distribute an IP address.</p> <ul style="list-style-type: none"> Set an IP address to the master station. Use a master station that supports the IP packet transfer function. <p>After taking the actions above, check that baton pass becomes enabled. Then execute the IP communication test again. The baton pass status can be checked using Baton pass status (own station) (SB0047, SW0047).</p>
D2E3 _H	No CC-Link IE Field Network gateway setting	<ul style="list-style-type: none"> Check that the CC-Link IE Field Network gateway setting is configured and is correct in the destination Ethernet adapter module. Check the IP address of the master station. <p>Take the actions above then execute the IP communication test again.</p>
D2E4 _H	IP address out of range (Ethernet part of the destination Ethernet adapter module)	<ul style="list-style-type: none"> When the IP address of the destination Ethernet adapter module (Ethernet part) is the same as the network address of the master station, set the IP address within the following range. <ul style="list-style-type: none"> Third octet: 1 to 239 Fourth octet: 1 to 120 Change the IP address of the CC-Link IE Field Network in the master station so that the IP address of the Ethernet adapter module (Ethernet part) may differ from the network address of the master station.

Error code	Error	Action
D501 _H	Communication LSI failure	<ul style="list-style-type: none"> Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
D502 _H	MAC address error	<ul style="list-style-type: none"> Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
D529 _H to D52A _H	RAM failure	<ul style="list-style-type: none"> Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
D52B _H to D52C _H	Communication LSI failure	<ul style="list-style-type: none"> Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
D62D _H	Failed to start data link	<p>The system failed to start data link due to any of the following causes. Remove the cause of the problem, and retry the operation.</p> <ul style="list-style-type: none"> No station number setting Ethernet adapter module failure Master station duplication Station type mismatch Master station lost Invalid station number of the own station Duplication of the own station number Own station specified as reserved station Parameter error Parameters being sent Parameters not received (master station only: no slave stations exist.) Link stop instruction
D62E _H	Master station lost	Communication with the master station was lost. Check the wiring for cable disconnection.
D721 _H	Link start/stop retry error (to another station)	<ul style="list-style-type: none"> Link stop is not available because cyclic transmission has been stopped. Link start is not available because cyclic transmission is in execution.
D722 _H	Link start/stop retry error (to own station)	<ul style="list-style-type: none"> Link stop is not available because cyclic transmission has been stopped. Link start is not available because cyclic transmission is in execution.
D725 _H	Station type error (station executing data link start/stop to the entire system)	The Ethernet adapter module cannot execute link start/stop of all or multiple stations. Execute link start/stop of all or multiple stations from the master station.
D726 _H	Transient data request error	Correct the request command at the transient request station, and retry the operation.

Error code	Error	Action
D727 _H	Data link start/stop instructing station error	<ul style="list-style-type: none"> • Link start was instructed from a station different from the station that instructed the link stop. The station instructing a link start must be the same as the station that instructed the link stop. • The method of the link start (data link start instruction in CC-Link IE Field Network diagnostics or by using the link special relay (SB) or link special register (SW) in the program) is different from that of the link stop. Instruct the link start by the same method as used for the link stop instruction. • Link start has failed in the past. Force the system to restart data link.
D728 _H	Data link start/stop instructing station error	Link start was instructed during execution of data link. Instruct link start after instruction of link stop.
D729 _H	Station No. or network No. not set	Set the station or network number and write the parameters from the configuration tool.
D72A _H	Out-of-range station No.	By online operation of the master station, change the network or station number of the Ethernet adapter module to a value within the following range. Network No.: 1 to 239 Station No.: 1 to 120
D783 _H to D784 _H	Transient data request error	Check the read request data at the transient request station, and retry the operation.
D800 _H	Ethernet adapter module failure	<ul style="list-style-type: none"> • Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. • Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
D806 _H	Receive queue full	<ul style="list-style-type: none"> • Reduce the frequency of transient transmission and then retry the operation. • Check if the cables and the switching hub are connected properly.
D814 _H	Ethernet adapter module failure	<ul style="list-style-type: none"> • Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. • Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
D816 _H	Ethernet adapter module failure	<ul style="list-style-type: none"> • Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. • Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
D81A _H	Ethernet adapter module stop error	Check the error in the Ethernet Adapter Diagnostics of the configuration tool for the Ethernet adapter module, and take corrective action. From the master station, check the network condition by CC-Link IE Field Network diagnostics of GX Works2, and take action.
D827 _H	Communication RAM failure	<ul style="list-style-type: none"> • Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. • Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
D82E _H	IP packet transfer function not supported (IP communication test)	Check the first five digits of the serial number of the CPU module. If the module does not support the used function, replace it with the CPU module with the latest version.
D902 _H	Incorrect online test data	<ul style="list-style-type: none"> • Check the data at the station that initiated the online test, and retry the test. • If this error persists, please consult your local Mitsubishi representative.

Error code	Error	Action
D903 _H	Communication test retry error	After completion of the communication test, retry it.
D905 _H	Communication monitoring time in communication test timed out	<ul style="list-style-type: none"> • Check the network condition by CC-Link IE Field Network diagnostics, take action, and retry the operation. • Check if the routing parameters are correctly set.
D906 _H	Transmission completion wait time in communication test timed out	<ul style="list-style-type: none"> • Check the network condition by CC-Link IE Field Network diagnostics, take action, and retry the operation. • Check if the routing parameters are correctly set.
D909 _H	Header information error in transient data	Correct the header information at the transient request source, and retry the operation.
D90A _H	Double communication test data received	After completion of the communication test, retry it.
D90B _H	Incorrect number of stations	<ul style="list-style-type: none"> • Check the network condition by CC-Link IE Field Network diagnostics of GX Works2, and take action. • If the number of slave stations per network is more than 120, reduce it to 120 or less.
D90C _H	Communication test target station specification error	Check "Communication Destination Setting" of the communication test, and retry the operation.
D90D _H	Cable test retry error	After completion of the cable test, retry it.
D90E _H	IP packet transfer function not supported	The transfer destination of the IP data does not support the IP packet transfer function.
D90F _H	IP communication test in progress	Retry the operation after a while.
D910 _H	IP address not set (own station)	Check the destination IP address of the IP communication test.
D911 _H	Destination IP address error	Check the destination IP address of the IP communication test.
DA00 _H to DA01 _H	Ethernet adapter module failure	<ul style="list-style-type: none"> • Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. • Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
DA10 _H to DA18 _H	Ethernet adapter module failure	<ul style="list-style-type: none"> • Malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. • Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
DAF2 _H	Failed to write to flash ROM	<ul style="list-style-type: none"> • If the number of times that data were written to the flash ROM exceeded 100,000, set the system not to hold the error history by power-off/reset in "PLC System" in the parameter setting. • Check the wire and cable distances and grounding condition of each device, and take measures against noise. • Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.
DAF3 _H	MAC address read error	<ul style="list-style-type: none"> • The RAM may malfunction due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise. • Perform a unit test on the Ethernet adapter module. If the failure occurs again, the hardware of the Ethernet adapter module may be faulty. Please consult your local Mitsubishi representative.

(5) Error code list (E000_H to FFFF_H)

The following lists the error messages, error conditions, causes, and actions of the error codes (E000_H to FFFF_H).

Error code	Error	Action
E000 _H to EFFF _H	Errors that may be detected by the CC-Link IE Controller Network	Refer to the CC-Link IE Controller Network reference manual.
F000 _H to FFFF _H	Errors that may be detected by the MELSECNET/H or MELSECNET/10 network system	Refer to the MELSECNET/H or MELSECNET/10 network system reference manual.

CHAPTER 10 CONFIGURATION TOOL

This chapter describes the starting procedure, window structures, and functions of the configuration tool.

10.1 Starting Procedure

10.1.1 Preparation before starting the tool

(1) Connecting the Ethernet adapter module and a configuration computer

They can be connected via a switching hub or directly. (☞ Page 47, Section 5.1)

(2) Checking the operating environment of the personal computer

Check the operating environment of the personal computer. (☞ Page 50, Section 5.3.1)
Install the .NET Framework 2.0 SP2 or later if it is not installed.

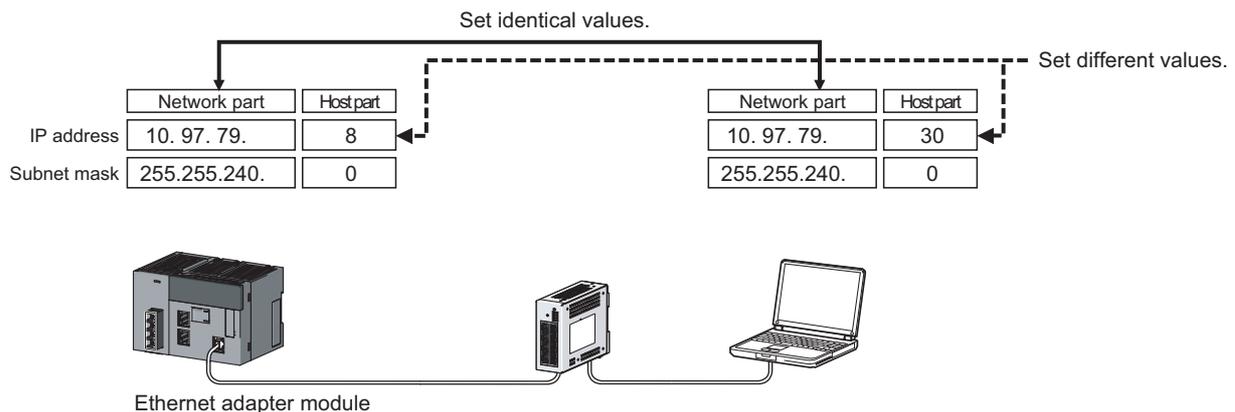
(3) Configuring the personal computer

Set the same value for each network part of the IP addresses of the Ethernet adapter module and the personal computer. For the host part of the IP address, the Ethernet adapter module must have a different value from that of the personal computer.

The following IP address and subnet mask values are set for the Ethernet adapter module by default.

- IP address: 192.168.3.30
- Subnet mask: 255.255.255.0

When starting up the configuration tool the first time, configure network settings of the personal computer according to the IP address and subnet mask values shown above.

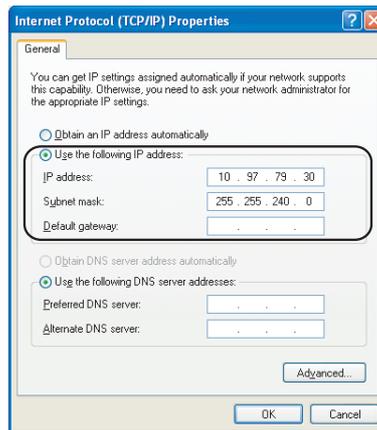


Configure the network settings for the personal computer in the "Internet Protocol (TCP/IP) Properties" dialog box.

- Ex.** Operating procedure
- Computer environment

Operating system: Microsoft® Windows® XP Professional Operating System

Control Panel ⇨ "Network and Internet Connections" ⇨ "Network Connections" ⇨ "Local Area Connection" ⇨ "General" ⇨ button ⇨ "Internet Protocol (TCP/IP)"



(4) Setting the Web browser

Configure the settings for the proxy server or the JavaScript from the Web browser.

(a) Proxy server settings

Perform the Web browser settings in the "Local Area Network (LAN) Settings" dialog box.

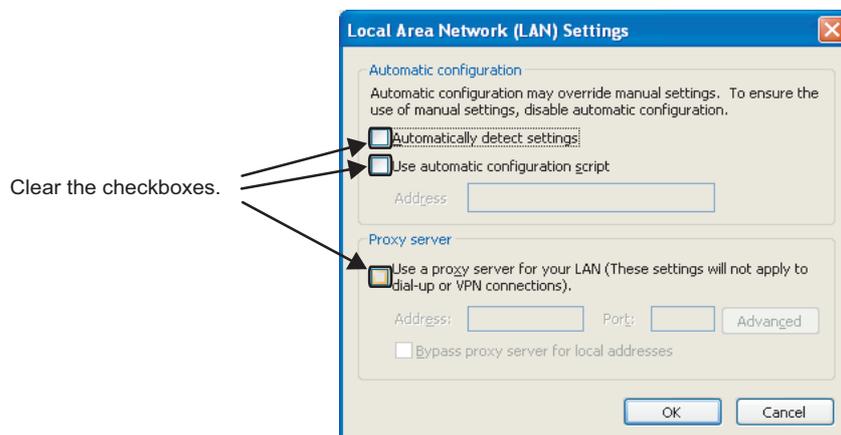
If the same value is set for the network part of the Ethernet Adapter Module and the proxy server, the following setting is not required.

- Ex.** Operating procedure
- Computer environment

Operating system: Microsoft® Windows® XP Professional Operating System

Web browser: Internet Explorer® 8.0

Web browser ⇨ [Tools] ⇨ [Internet Options] ⇨ "Connections" ⇨ button



(b) JavaScript settings

Perform the JavaScript settings in the "Security Settings" dialog box.

Ex. Operating procedure

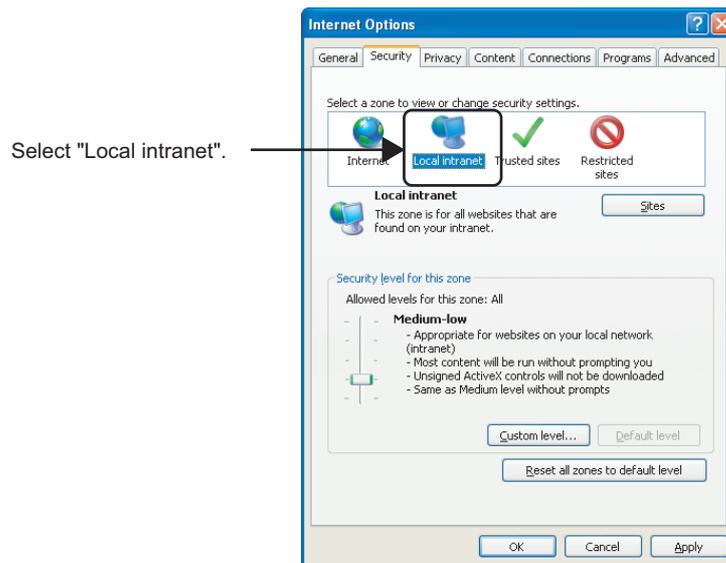
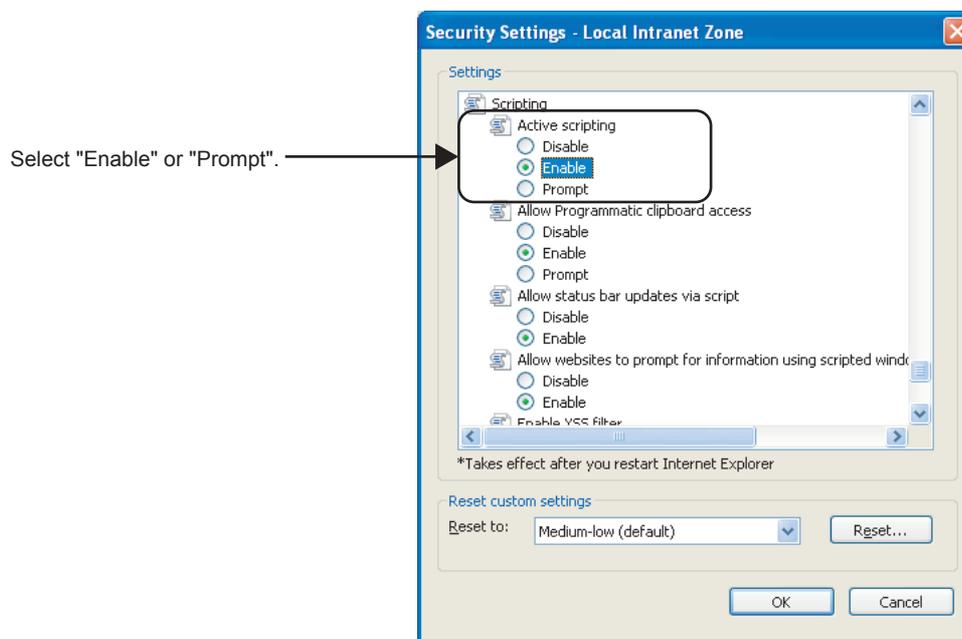
- Computer environment

Operating system: Microsoft® Windows® XP Professional Operating System

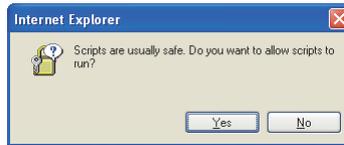
Web browser: Internet Explorer® 8.0

1. Select "Local Intranet Zone".

🖱️ Web browser ⇒ [Tools] ⇒ [Internet Options] ⇒ "Security"

**2. After that, click the button and configure the settings as shown below.**

When "Prompt" is selected, the following dialog box may be displayed during the start-up of the configuration tool. If this occurs, click the button.

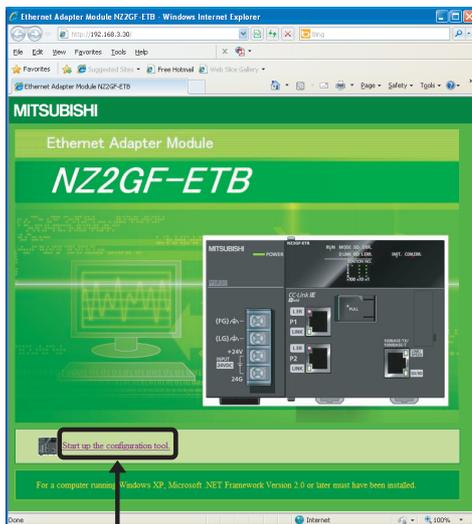


10.1.2 Starting up the configuration tool

The configuration tool can be started by either of the following methods.

- Starting from the Web browser (☞ Page 179, Section 10.1.2 (1))
- Starting from GX Works2 (☞ Page 181, Section 10.1.2 (2))

(1) Starting from a Web browser



Click

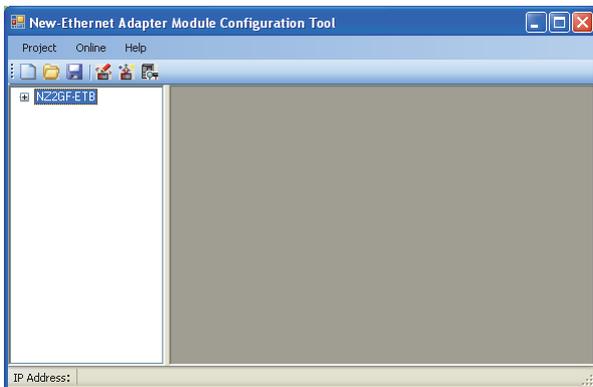
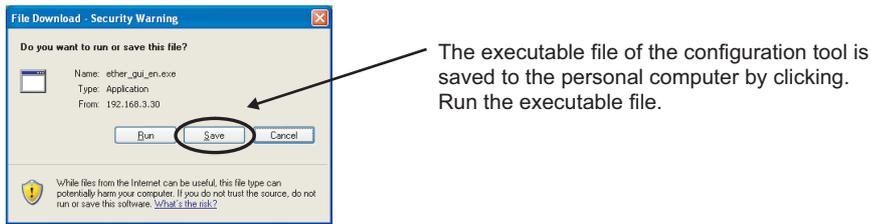
1. Start a Web browser from the personal computer.
2. Enter the IP address of the Ethernet adapter module in the Address space, click the Enter key.
The IP address shown in the left is a default value.
3. Click "Start up the configuration tool."



Starting up the configuration tool directly from the Ethernet Adapter Module



Saving the configuration tool to the personal computer



4. When the dialog box on the left is displayed, click the  button.

5. The configuration tool is activated.
If the configuration tool is not activated, refer to the troubleshooting method for the cases that the configuration tool does not start or that communication is not available, and then take action.

 Page 152, Section 9.4.3

(2) Starting from GX Works2

1. From GX Works2, start the configuration tool.

 [Tool] ⇨ [Ethernet Adapter Module Configuration Tool]

2. Enter the IP address of the Ethernet adapter module, and click the button. The IP address shown in the left is a default value.

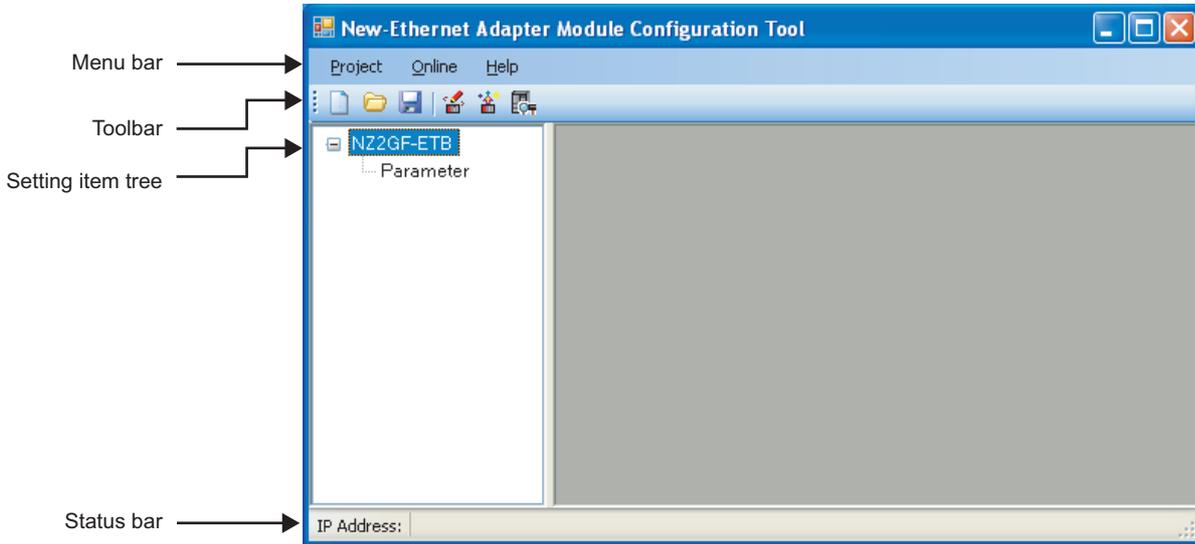


3. The procedure after the step is the same as the one shown in step 3 or later of "Starting from a Web browser". ( Page 179, Section 10.1.2 (1))

10.2 Window Structure

10.2.1 Main window structure

The main window structure of the configuration tool is as illustrated below.



Name	Description	Reference
Menu bar	Menus which provide access to respective functions are displayed.	Page 183, Section 10.2.2
Toolbar	Tool buttons used for execution of respective functions are displayed.	Page 183, Section 10.2.3
Setting item tree	Selecting one of the tree items will display the corresponding configuration dialog box.	Page 184, Section 10.3
Status bar	The IP address of the connected Ethernet adapter module is displayed.	—

10.2.2 Menu bar elements

The following are the menu bar elements of the configuration tool.

Project	
New	Creates a new project.
Open	Opens a project file that has been saved to the local disk. When a project is saved in the configuration tool of other languages, opening the file may cause garbled characters.
Save	Saves the current project file.
Save As	Saves the current project with a different file name. The extension of the project file is ".eap".
Exit	Terminates the configuration tool.

Online	Reference
Read	Page 195, Section 10.5.2
Write	Page 195, Section 10.5.1
Diagnostics	Page 198, Section 10.7
Monitor	Page 196, Section 10.6
Destination Setting	Page 194, Section 10.4

Help	
About	Displays the version of the configuration tool.

10.2.3 Toolbar elements

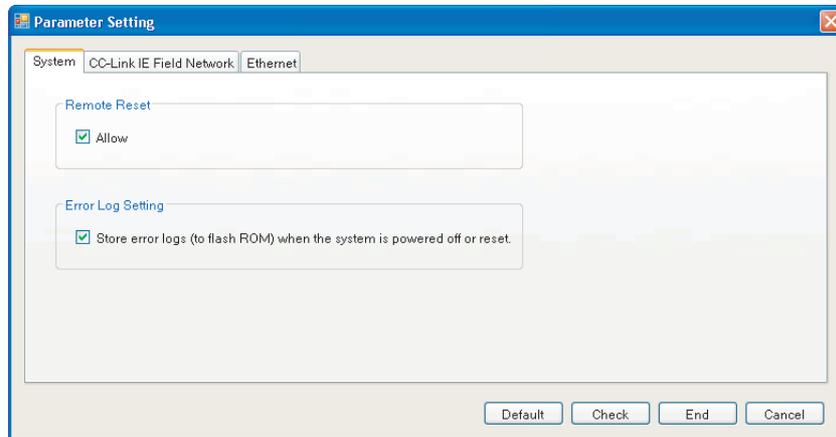
The following are the toolbar elements of the configuration tool.

Toolbar icon	Corresponding menus	Description
	[Project] ⇨ [New]	Creates a new project.
	[Project] ⇨ [Open]	Opens a project file that has been saved to the local disk.
	[Project] ⇨ [Save]	Saves the current project file.
	[Online] ⇨ [Write]	Writes parameters to the Ethernet adapter module.
	[Online] ⇨ [Read]	Reads settings from the Ethernet adapter module.
	[Online] ⇨ [Diagnostics]	Performs diagnostics on the Ethernet adapter module.

10.3 Parameters

This section describes the parameters of the Ethernet Adapter Module. The setting dialog box can be displayed by the following operation.

 Setting item tree ⇨ NZ2GF-ETB ⇨ [Parameter]



The Parameter Setting dialog box contains the following three kinds of settings, and each of them can be displayed by selecting the tab.

Item	Description	Parameter No. ^{*1}	Reference
System	For the Ethernet Adapter Module, specify whether or not to: <ul style="list-style-type: none"> Allow remote reset. Hold error logs when the system is powered off or reset. 	1002 _H , 01F0 _H	Page 185, Section 10.3.1
CC-Link IE Field Network	Configure the settings for connecting the Ethernet Adapter Module to CC-Link IE Field Network.	01F0 _H	Page 186, Section 10.3.2
Ethernet	Configure the settings for connecting the Ethernet Adapter Module to Ethernet.	9181 _H	Page 189, Section 10.3.3

*1 The parameter numbers are used to identify an invalid parameter when a parameter error has occurred.

(1) Buttons

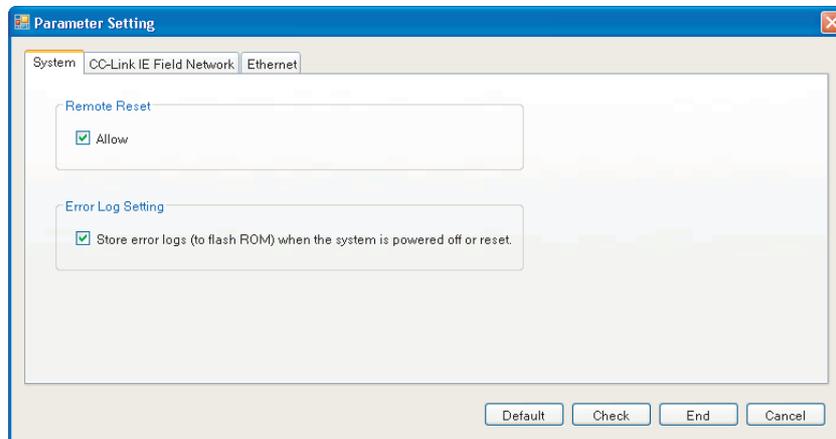
The buttons displayed in the Parameter Setting dialog box are explained below.

Button	Description
 button	Sets default values for all of the setting items on the current dialog box.
 button	Checks if the parameters set on the current dialog box are correct.
 button	Ends the setting.
 button	Cancels the setting.

10.3.1 System setting

Configure the system settings required for use of the Ethernet Adapter Module.

Setting item tree ⇨ NZ2GF-ETB ⇨ [Parameter] ⇨ "System"



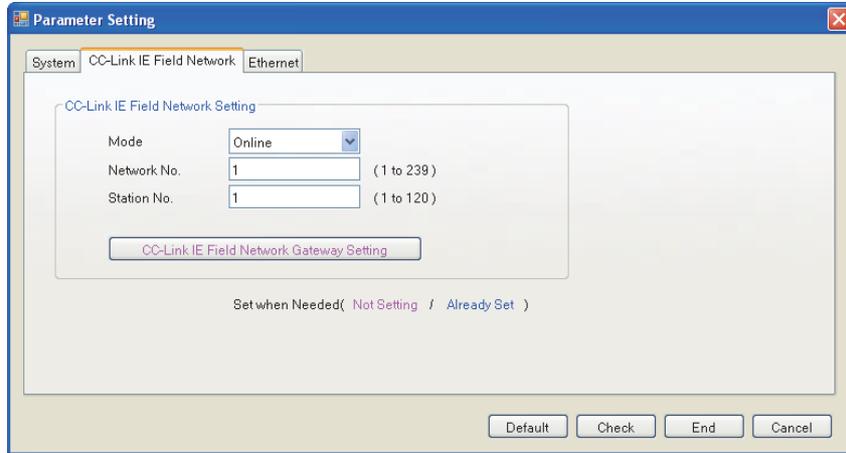
The following table lists the setting items on the dialog box.

Item		Description	Setting range
Remote Reset	Allow	Specify whether to enable remote reset of the Ethernet Adapter Module.	Allow/not allow (Default: Allow)
Error Log Setting	Store error logs (to flash ROM) when the system is powered off or reset.	Set whether to hold error logs after the system is powered off or reset.	Hold/not hold (Default: Hold)

10.3.2 CC-Link IE Field Network

Configure the settings for connecting the Ethernet Adapter Module to CC-Link IE Field Network.

Setting item tree ⇒ NZ2GF-ETB ⇒ [Parameter] ⇒ "CC-Link IE Field Network"



The following table lists the setting items on the dialog box.

Item	Description	Setting range
CC-Link IE Field Network	Mode	Set the mode of the Ethernet Adapter Module. Online/Offline (Default: Online)
	Network No.	Set the network number of the Ethernet Adapter Module. 1 to 239 (Default: None)
	Station No.	Set the station number of the Ethernet Adapter Module. 1 to 120 (Default: None)
	CC-Link IE Field Network Gateway Setting	Set the communication route of when the IP packet transfer function is used. (☞ Page 187, Section 10.3.2 (1))

(1) CC-Link IE Field Network gateway setting

When the network address (the first and second octets of the IP address) of the external device is different from that of the master station, set the communication route where communications reach the request destination external device.

This setting is not required when the request source external device, request destination external device, and modules between them have the same network address.

Configure the CC-Link IE Field Network gateway setting to perform IP communications via CC-Link IE Field Network (IP packet transfer function). (☞ Page 105, Section 7.3)

192 . 168 . 3 . 1
|
 Network address

Point

If the setting is configured although the network address of the external device is the same as that of the master station, the Ethernet adapter module ignores the setting.

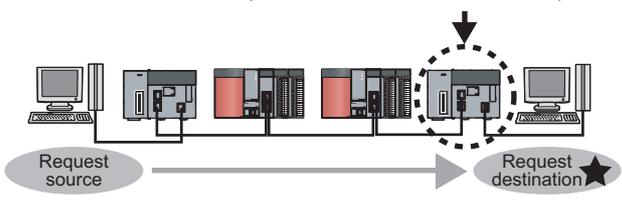
(a) Setting details

☞ Setting item tree ⇒ NZ2GF-ETB ⇒ [Parameter] ⇒ "CC-Link IE Field Network Gateway Setting"

☞ CC-Link IE Field Network Gateway Setting button

The following table lists the setting items on the dialog box.

Item	Description	Setting range
IP Address Input Format	Set the input type for the IP address and subnet mask pattern.	DEC/HEX (Default: DEC)

Item	Description		Setting range													
Ethernet	IP Address	Configure the setting for the station on CC-Link IE Field Network, where the external device of the request destination is connected, so that communications reach the external device. <ul style="list-style-type: none"> Set the IP address and subnet mask pattern of the request destination in "Ethernet". Set the station where the IP packet transmits through last in "CC-Link IE Field Network Gateway Setting Station". Up to eight communication routes can be set. Pressing the <input type="button" value="Enter"/> Enter key moves the focus. 	<ul style="list-style-type: none"> Decimal input 0.0.0.1 to 223.255.255.254 (Default: none) Hexadecimal input 0.0.0.1 to DF.FF.FF.FE (Default: none) 													
	Subnet Mask Pattern	To transmit communications to the request destination★, the IP packet passes through the station with the network address No.▲ and station No.■. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th colspan="2">Ethernet</th> <th colspan="2">CC-Link IE Field Network Gateway Setting Station</th> </tr> <tr> <th>No.</th> <th>IP Address</th> <th>Subnet Mask Pattern</th> <th>Station No.</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>★</td> <td>▲</td> <td>■</td> </tr> </tbody> </table>	Ethernet		CC-Link IE Field Network Gateway Setting Station		No.	IP Address	Subnet Mask Pattern	Station No.	1	★	▲	■	<ul style="list-style-type: none"> Decimal input 192.0.0.0 to 255.255.255.255 (Default: none) Hexadecimal input C0.0.0.0 to FF.FF.FF.FF (Default: none) 	
Ethernet		CC-Link IE Field Network Gateway Setting Station														
No.	IP Address	Subnet Mask Pattern	Station No.													
1	★	▲	■													
CC-Link IE Field Network Gateway Setting Station	Network No.	Station where the IP packet passes through last (Network No.▲, station No.■) 	1 to 239 (Default: none)													
	Station No.	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Ex. <ul style="list-style-type: none"> When setting the communication route to all the IP addresses starting with 192.160.10 <table border="1" style="margin: 5px auto;"> <thead> <tr> <th colspan="2">Ethernet</th> </tr> <tr> <th>No.</th> <th>Subnet Mask Pattern</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>255.255.255.0</td> </tr> </tbody> </table> <p style="text-align: center;"> <input type="button" value="Enter"/> Enter a number in the 4th octet. <input type="button" value="Enter"/> Enter 0 in the 4th octet. </p> </div> <ul style="list-style-type: none"> When setting the communication route to the IP address of 192.160.10.21 <table border="1" style="margin: 10px auto;"> <thead> <tr> <th colspan="2">Ethernet</th> </tr> <tr> <th>No.</th> <th>IP Address</th> <th>Subnet Mask Pattern</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>192.160.10.21</td> <td>255.255.255.255</td> </tr> </tbody> </table>	Ethernet		No.	Subnet Mask Pattern	1	255.255.255.0	Ethernet		No.	IP Address	Subnet Mask Pattern	1	192.160.10.21	255.255.255.255
Ethernet																
No.	Subnet Mask Pattern															
1	255.255.255.0															
Ethernet																
No.	IP Address	Subnet Mask Pattern														
1	192.160.10.21	255.255.255.255														
<input type="button" value="←"/> <input type="button" value="→"/> button		These buttons are used to change the priority for communication routes set in "Ethernet" and "CC-Link IE Field Gateway Setting Station".	—													
CC-Link IE Field Network Default Gateway Setting	Network No.	Set the station on CC-Link IE Field Network, where communications transmit through to reach the request destination.	1 to 239 (Default: none)													
	Station No.	This setting is used to communicate with an external device that does not exist in "Ethernet" or "CC-Link IE Field Gateway Setting Station".	0 to 120 (Default: none)													

Point

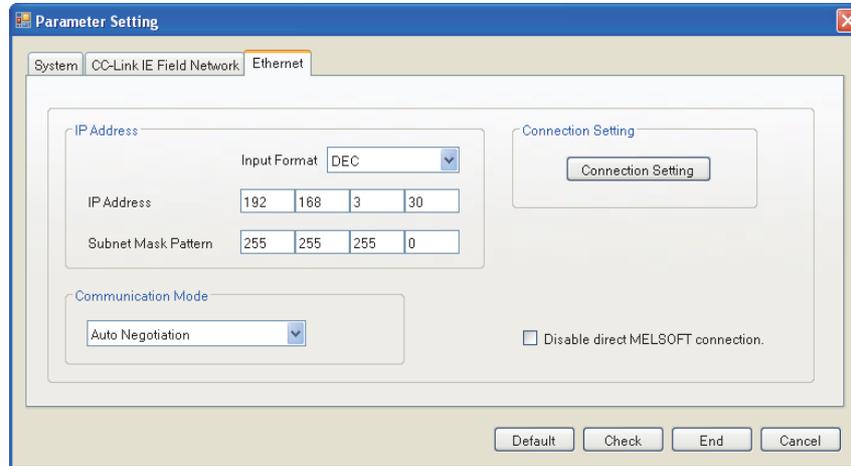
Set the CC-Link IE Field Network gateway setting in the request source that accesses a different network address.

 Page 126, Section 7.3.7 (2)

10.3.3 Ethernet setting

Configure the settings for connecting the Ethernet Adapter Module to the Ethernet.

 Setting item tree ⇨ NZ2GF-ETB ⇨ [Parameter] ⇨ "Ethernet"



The following table lists the setting items on the dialog box.

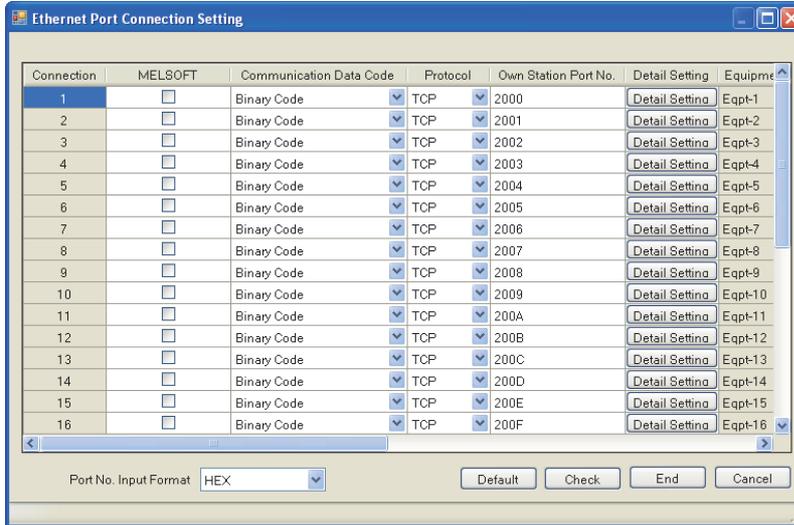
Item		Description	Setting range
IP Address	Input Format	Select an input format for the IP address and subnet mask pattern.	DEC/HEX (Default: DEC)
	IP Address	Set the IP address of the Ethernet Adapter Module. If the IP address was changed, configure the network settings again.  Page 175, Section 10.1.1 (3))	<ul style="list-style-type: none"> Decimal input 0.0.0.1 to 223.255.255.254^{*1} (Default: 192.168.3.30) Hexadecimal input 0.0.0.1 to DF.FF.FE^{*1} (Default: C0.A8.03.1E)
	Subnet Mask Pattern	Set the subnet mask of the Ethernet Adapter Module. If the subnet mask was changed, configure the network settings again.  Page 175, Section 10.1.1 (3))	<ul style="list-style-type: none"> Decimal input 192.0.0.0 to 255.255.255.252 (Default: 255.255.255.0) Hexadecimal input C0.0.0.0 to FF.FF.FC (Default: FF.FF.FE.00)
Communication Mode		Set the communication mode.	Auto Negotiation 100Mbps/Half Duplex 100Mbps/Full Duplex (Default: Auto Negotiation)
Connection Setting		Set connections.  Page 191, Section 10.3.3 (1))	—
Disable direct MELSOFT connection.		Specify whether to disable direct connections to MELSOFT.	Disable/not disable (Default: Not disable)

*1 Restrictions apply to IP addresses that can be set to perform the communications described on the next page. Build the system so that the IP address within each setting range described on the next page can be set.

(1) Connection Setting

Configure the Ethernet Connection settings. Up to 32 Connections can be set.

Setting item tree ⇨ NZ2GF-ETB ⇨ [Parameter] ⇨ "Ethernet" ⇨  button



The following table lists the setting items on the window.

Item	Description	Setting range
MELSOFT	Select the checkbox when using the connection for MELSOFT connection. When the checkbox is selected, items after "Connection Data Code" are automatically set.	Selected/Not selected (Default: Not selected)
Communication Data Code	Set a communication data code.	Binary Code/ASCII Code (Default: Binary Code)
Protocol	Set a communication protocol.	TCP/UDP (Default: TCP)
Own Station Port No.	Set the Own Station Port No. Set a unique number for each Connection. If Connection is selected to be used for MELSOFT in "MELSOFT", "MELSOFT Connection" is displayed for the connection.	<ul style="list-style-type: none"> Decimal input 1025 to 4999, 5011 to 65534_H (Default: 8192 to 8223) Hexadecimal input 0401_H to 1387. 1393_H to FFFE_H (Default: 2000_H to 201F_H)
Detail Setting	Set the Connection details.  Page 192, Section 10.3.3 (1) (a))	—
Port No. Input Format	Select a port number input format.	HEX/DEC (Default: HEX)

Point 

If the  button is clicked on the "Ethernet Port Connection Setting" window, the parameters set in the "Detail Setting" dialog box are also set to default values.

(a) Detail Setting

The following table lists the setting items on the dialog box.

Item		Description	Setting range
Name Setting	Equipment Name	Enter an equipment name.	8 characters or less (Default: Eqpt-1-Connection No.)
	Comment	Enter a comment.	32 characters or less (Default: Connection-Connection No.)
TCP Connection		Select a TCP connection type.* ¹ Set this item only when "TCP" is selected for "Protocol" in the "Ethernet Port Connection Setting" window.	Unpassive/Fullpassive (Default: Unpassive)
Destination Port No.* ²	Input Format	Select a format used for entering the port number of the external communication-target device.	DEC/HEX (Default: HEX)
	Port No.	Enter the port number of the external device with which communications are made.	<ul style="list-style-type: none"> Decimal input 1 to 65535 (Default: 65535) Hexadecimal input 1_H to FFFF_H (Default: FFFF_H)
Destination IP Address* ²	Input Format	Select a format used for entering the IP address of the external communication-target device.	DEC/HEX (Default: DEC)
	IP Address	Enter the IP address of the external device with which communications are made.	<ul style="list-style-type: none"> Decimal input 0.0.0.1 to 255.255.255.255 (Default: 255.255.255.255) Hexadecimal input 0.0.0.01 to FF.FF.FF.FF (Default: FF.FF.FF.FF)

*¹ There are the following two kinds of TCP connection types.

- Fullpassive : Allows connections only when the IP address and port number of the destination meet the specified ones. If an external device with any other IP address and/or port number tries to open a connection, the line will be automatically disconnected.
However, if the following items are set to default values, connections are allowed with no restrictions on the IP address and port number of the destination.
 - Destination Port No.
 - Destination IP Address
- Unpassive : Allows connections with no restrictions on the IP address and port number of the destination.

*² No setting is required when "Unpassive" is set for "TCP Connection".

10.3.4 Precautions

(1) Parameters for the entire CC-Link IE Field Network

Parameters for the entire CC-Link IE Field Network (e.g. number of slave stations, link device assignment, reserved station and error invalid station settings) must be set on the master station. For details, refer to the following.

 User's manual for the master/local module used

(2) Routing parameters used for communication with another network

Routing parameters used for communication with another network must be set on the master station. No setting is required on the Ethernet Adapter Module.

10.4 Destination Setting

Set the IP address of the connected Ethernet adapter module before execution of parameter writing or reading or diagnostics.

 [Online] ⇔ [Destination Setting]

10.5 Parameter Writing/Reading

Parameters can be written and read.

10

10.5.1 Parameter writing

1. Write the set parameters to the Ethernet adapter module. (Set the switch on the Ethernet adapter module to STOP.)

 [Online] ⇄ [Write]

2. After completion of the writing, reset the Ethernet adapter module if necessary.

10.5.2 Parameter reading

Read parameters from the Ethernet adapter module.

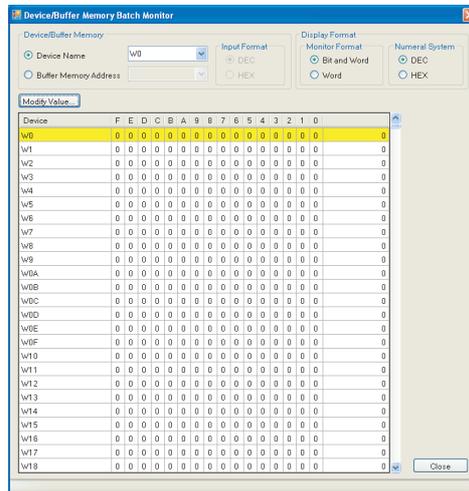
 [Online] ⇄ [Read]

10.6 Device/Buffer Memory Batch Monitor

The devices and buffer memories can be specified to be checked.*1

*1 Check the corresponding serial No. and software version. (☞ Page 233, Appendix 10)

☞ [Online] ⇨ [Monitor] ⇨ [Device/Buffer Memory Batch Monitor]



The following table lists the setting items on the dialog box.

Item		Description	
Device/Buffer Memory	Device Name	Set the device name to be monitored.	
	Buffer Memory Address	Enter the buffer memory address to be monitored.	
	Input Format	DEC HEX	Specify the input format for the buffer memory address.
Display Format	Monitor Format	Bit and Word Word	Specify the monitor format.
	Numeral System	DEC HEX	Specify how numbers are displayed.

(1) Devices that can be monitored and accessible range

The following table lists the devices that can be monitored and their accessible range.

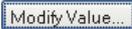
Device	Accessible range	Bit specification	Word specification
X	0000 _H to 1FFF _H	○	○*1
Y	0000 _H to 1FFF _H	○	○*1
W	0000 _H to 1FFF _H	×	○
SB	0000 _H to 1FFF _H	○	○*1
SW	0000 _H to 1FFF _H	×	○
SM	0000 to 2047	○	○*1
SD	0000 to 2047	×	○
Buffer memory	0000 _H to 7FFF _H	×	○

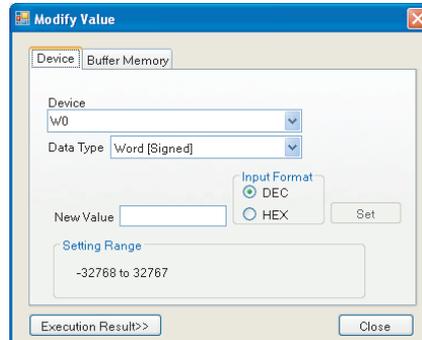
○: Can be specified, ×: Cannot be specified

*1 Words can be also specified for a bit device (e.g. K4X0)

(2) Changing the current value

Select the device or buffer memory to change the current value.

 [Online] ⇨ [Monitor] ⇨ [Device/Buffer Memory Batch Monitor] ⇨ 



The following table lists the setting items on the dialog box.

Item		Description
Device (Address)		Enter the device or buffer memory address to be changed.
Data Type	Bit	Select the data type of the device to be changed.
	Word [Signed]	
	Double Word [Signed]	
Input Format	DEC	Specify the input format of the device, buffer memory address, or value.
	HEX	
New Value		Enter the value to be changed.

The current value is changed to the specified value by entering the device or device of the buffer memory address and the value and clicking  button.

Clicking  button on the dialog box displays the execution result window.

10.7 Ethernet Adapter Diagnostics

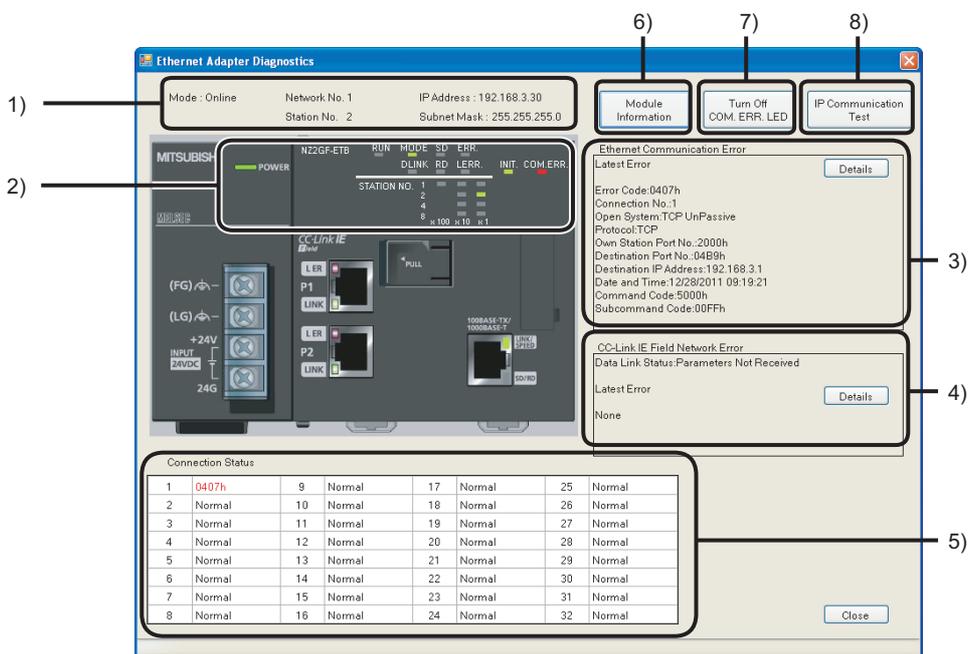
The latest error occurred in the Ethernet adapter module or the status of communication with external devices can be checked.

 [Online] ⇄ [Diagnostics]

Point

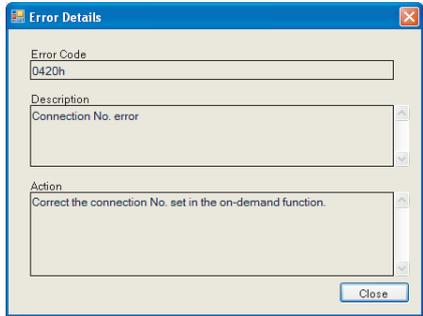
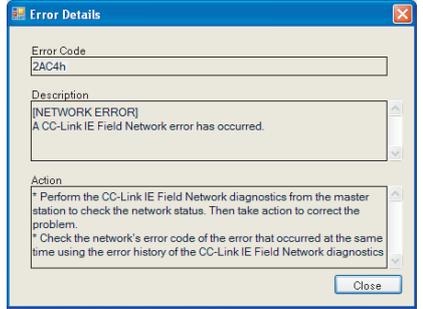
Set the IP address of the connected Ethernet adapter module in the "Destination Setting" dialog box before execution of the Ethernet adapter diagnostics.

 [Online] ⇄ [Destination Setting]



The following table lists the setting items on the dialog box.

No.	Item	Description
1)	Mode	Displays the mode of the own station.
	Network No.	Displays the network number of the own station.
	Station No.	Displays the station number of the own station.
	IP Address	Displays the IP address of the own station.
	Subnet Mask	Displays the subnet mask of the own station.
2)	LEDs	Displays the status of the LEDs. ( Page 22, CHAPTER 2) When the Ethernet adapter module is in the offline mode, the display of the SD LED and RD LED is not changed.

No.	Item	Description	
3)	Latest Error	—	
	Error Code	Displays an error code of the Ethernet part. (☞ Page 157, Section 9.5)	
	Connection No.	Displays the number of the Connection where the error occurred.	
	Open System	Displays how the Connection is opened.	
	Protocol	Displays the protocol for the Connection.	
	Own Station Port No.	Displays the own station's port number at the time of the error.	
	Destination Port No.	Displays the port number of the target external device.	
	Destination IP Address	Displays the IP address of the target external device.	
	Date and Time	Displays the date and time of the error occurrence.	
	Command Code	Displays a command code of the message that was detected as an error.	
	Subcommand Code	Displays a subcommand code of the message that was detected as an error.	
	 *1	Displays the error details and countermeasure. 	
	Data Link Status*1	Displays the current data link status.	
4)	Latest Error*1	—	
	Error Code	Displays an error code of the CC-Link IE Field Network part. (☞ Page 157, Section 9.5)	
	Date and Time	Displays the date and time of the error occurrence.	
		 *1	Displays the error details and countermeasure. 
		Connection Status	Displays the latest error code of each Connection (No.1 to No.32). Normal: No error Other than normal: Latest error code
6)	 *1	Displays the information about the Ethernet adapter module. (☞ Page 235, Appendix 11 (3))	
7)	 *1	Clears the communication error and turns off the COM.ERR.LED.	
8)	 *1	Checks whether the communication route between external devices is correctly set and whether IP communications over CC-Link IE Field Network (IP packet transfer function) can be performed. (☞ Page 121, Section 7.3.6)	

*1 Check the corresponding serial number and software version. (☞ Page 233, Appendix 10)

APPENDICES

Appendix 1 Buffer Memory Details

This section describes the buffer memory of the Ethernet adapter module.

(1) Reading from or writing to the buffer memory

(a) Access from the master/local module on CC-Link IE Field Network

When the master/local module is a Mitsubishi product, execute the following dedicated instructions.

- Reading: REMFR instruction
- Writing: REMTO instruction

For the "I/O number of an intelligent function module that is on an intelligent device station", specify "00" in the setting data of the dedicated instruction. For details, refer to the following.

 User's manual for the master/local module used

(b) Access from the external device on the Ethernet network

By SLMP, send the following command messages.

- Reading

Item		Command	Subcommand
Type	Operation		
Memory	Read	0613	0000

- Writing

Item		Command	Subcommand
Type	Operation		
Memory	Write	1613	0000

For details on SLMP, refer to the following.

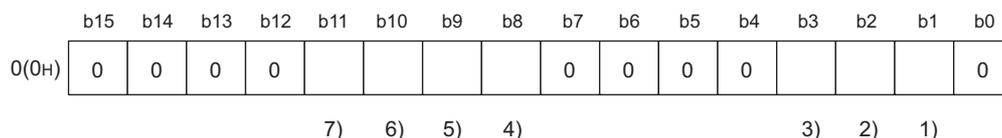
 SLMP Reference Manual

Appendix 1.1 Module operation area

The operating status of the Ethernet adapter module is stored.

(1) Module LED information (buffer memory address: 0 (0H))

Information on the LED status of the CC-Link IE Field Network part is stored in the following bit pattern.



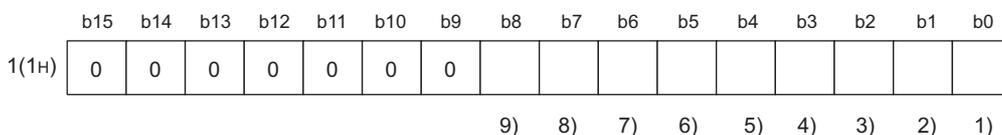
- | | |
|---------------|-------------------------|
| 1) D LINK LED | 2) RD LED ^{*1} |
| 3) L ERR. LED | 4) RUN LED |
| 5) MODE LED | 6) SD LED ^{*1} |
| 7) ERR.LED | |

0: Off, 1: On

*1 These LEDs can be used only when the Ethernet adapter module is in the online mode. The LED display is not changed while the Ethernet adapter module is in the offline mode.

(2) Station No. LED information (buffer memory address: 1 (1H))

The status information on the LEDs indicating the station number on the CC-Link IE Field Network part is stored in the following bit pattern.

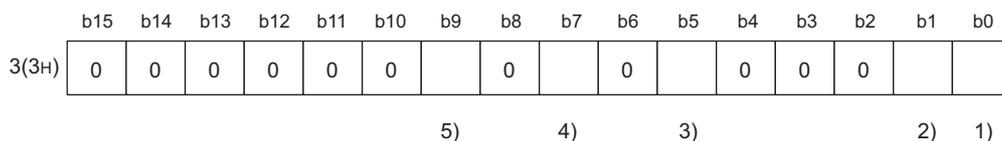


- | | |
|---------------|--------------|
| 1) 1 for x1 | 2) 2 for x1 |
| 3) 4 for x1 | 4) 8 for x1 |
| 5) 1 for x10 | 6) 2 for x10 |
| 7) 4 for x10 | 8) 8 for x10 |
| 9) 1 for x100 | |

0: Off, 1: On

(3) Ethernet port LED information (buffer memory address: 2 (2H))

Information on the LEDs of the Ethernet part is stored in the following bit pattern.



- | | |
|-----------------------|---------------------|
| 1) LINK/SPEED 100Mbps | 2) LINK/SPEED 1Gbps |
| 3) INT LED | 4) COM.ERR. LED |
| 5) SD/RD LED | |

0: Off, 1: On

Appendix 1.2 Own station information

(1) PORT1 and PORT2 (buffer memory address: 16 to 21 (10_H to 15_H))

Address	Name	Description
16 to 18 (10 _H to 12 _H)	Own station MAC address	The MAC address of the own station is stored.
19 (13 _H)	System area	—
20 to 21 (14 _H to 15 _H)	Own station IP address	The IP address assigned from the master station is stored (when the IP packet transfer function is used).

(2) Ethernet port (buffer memory address: 26 to 33 (1A_H to 21_H))

Address	Name	Description
26 to 28 (1A _H to 1C _H)	Own station MAC address	The MAC address of the own station is stored.
29 (1D _H)	System area	—
30 to 31 (1E _H to 1F _H)	Own station IP address	The IP address of the own station is stored.
32 to 33 (20 _H to 21 _H)	Own station subnet mask	The subnet mask of the own station is stored.

(3) Parameters (buffer memory address: 36 to 38 (24_H to 26_H))

Address	Name	Description
36 (24 _H)	Mode	The mode of the own station is stored. 0: Online 1: Offline
37 (25 _H)	Network No.	The network number of the own station is stored.
38 (26 _H)	Station No.	The station number of the own station is stored.

(4) Function check area (buffer memory address: 48 (30_H))

Address	Name	Description																																
48 (30 _H)	Function check area	<p>The status of each supported function is indicated.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">b15</td><td style="text-align: center;">b14</td><td style="text-align: center;">b13</td><td style="text-align: center;">b12</td><td style="text-align: center;">b11</td><td style="text-align: center;">b10</td><td style="text-align: center;">b9</td><td style="text-align: center;">b8</td><td style="text-align: center;">b7</td><td style="text-align: center;">b6</td><td style="text-align: center;">b5</td><td style="text-align: center;">b4</td><td style="text-align: center;">b3</td><td style="text-align: center;">b2</td><td style="text-align: center;">b1</td><td style="text-align: center;">b0</td> </tr> <tr> <td style="text-align: center;">0</td><td style="text-align: center;">0</td> </tr> </table> <p style="text-align: right;">2) 1)</p> <p>1) On-demand function 2) IP packet transfer function 0: Not supported, 1: Supported</p>	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																			

Appendix 1.3 Ethernet port operation area

(1) Initial processing error code (buffer memory address: 768 (300_H))

The initial processing result is stored.

0: Completed

Other than 0: Failed

Refer to the troubleshooting page describing the case where the INIT. LED turned off, and take action.

 Page 149, Section 9.3.3 (1)

(2) Connection information area No.1 (buffer memory address: 784 to 799 (310_H to 31F_H))

Address	Name	Description
784 (310 _H)	Open system	The specified open system is stored. 0: TCP Unpassive 1: TCP Fullpassive 3: UDP
785 (311 _H)	Protocol	The specified protocol is stored. 0: TCP 1: UDP
786 (312 _H)	Communication data code	The specified communication data code is stored. 0: Binary code 1: ASCII code
787 (313 _H)	Own Station Port No.	The port number specified for the own station is stored. 0000 _H : No setting 0401 _H to 1387 _H , 1393 _H to FFFE _H : Own station's port
788 (314 _H)	TCP connection system	The specified TCP connection system is stored. Valid only when the protocol is TCP. 0: Unpassive 1: Fullpassive
789 (315 _H)	Connection status	The current status is stored. • When the protocol is TCP: 0000 _H : Disconnected (Connection disrupted) 0001 _H : Communicating (Connection established) • When the protocol is UDP: 0000 _H : Error 0001 _H : Normal
790 to 791 (316 _H to 317 _H)	System area	—
792 (318 _H)	Latest error code	The latest error code is stored. 0: No error Other than 0: Latest error code
793 (319 _H)	Destination port No.	The port number of the external device on the other end is stored. • When the protocol is TCP: 0000 _H : No setting, or disconnected (Connection disrupted) Other than 0000 _H : Port No. of the external device with which the module is currently communicating • When the protocol is UDP: 0000 _H : No setting, or no communication log in the past Other than 0000 _H : Port number of an external device, with which the latest communication was made

Address	Name	Description
794 to 795 (31A _H to 31B _H)	destination IP address	The IP address of the communication target is stored. <ul style="list-style-type: none"> • When the protocol is TCP: 00000000_H: No setting, or disconnected (Connection disrupted) Other than 00000000_H: IP address of the communication destination • When the protocol is UDP: 00000000_H: No setting, or no communication log in the past Other than 00000000_H: IP address of the device, with which the latest communication was made
796 to 799 (31C _H to 31F _H)	System area	—

(3) Connection information area No.2 to No.32 (buffer memory address: 800 to 1295 (320_H to 50F_H))

In the same sequence as Connection information No.1, information is stored in Connection information area No.2 to No.32.

(4) Auto-open UDP port area (buffer memory address: 1296 to 1307 (510_H to 51B_H))

Address	Name	Description
1296 (510 _H)	Open system	Data of the open system is stored. 3: UDP (fixed)
1297 (511 _H)	Protocol	Data of the protocol is stored. 1: UDP (fixed)
1298 (512 _H)	Communication data code	A communication data code is stored. 0: Binary code (fixed)
1299 (513 _H)	Own Station Port No.	The port number of the own station is stored. 1388 _H : Own station's port (fixed)
1300 (514 _H)	System area	—
1301 (515 _H)	Connection status	The current status is stored. 0000 _H : Error 0001 _H : Normal
1302 to 1303 (516 _H to 517 _H)	System area	—
1304 (518 _H)	Latest error code	The latest error code is stored. 0: No error Other than 0: Latest error code
1305 (519 _H)	Destination port No.	The port number of the communication target is stored. 0000 _H : No setting, or no communication log in the past Other than 0000 _H : Port number of a device, with which the latest communication was made
1306 to 1307 (51A _H to 51B _H)	Destination IP address	The IP address of the communication target is stored. 00000000 _H : No setting, or no communication log in the past Other than 00000000 _H : IP address of a device, with which the latest communication was made

(5) MELSOFT application communication port (UDP/IP) area for the system (buffer memory address: 1313 to 1323 (521_H to 52B_H))

Address	Name	Description
1312 (520 _H)	System area	—
1313 (521 _H)	Protocol	Data of the protocol is stored. 1: UDP (fixed)
1314 (522 _H)	Communication data code	A communication data code is stored. 0: Binary code (fixed)
1315 (523 _H)	Own Station Port No.	The port number of the own station is stored. 1389 _H : Own station's port (fixed)
1316 (524 _H)	System area	—
1317 (525 _H)	Connection status	The current status is stored. 0000 _H : Error 0001 _H : Normal
1318 to 1319 (526 _H to 527 _H)	System area	—
1320 (528 _H)	Latest error code	The latest error code is stored. 0: No error Other than 0: Latest error code
1321 (529 _H)	Destination port No.	The port number of the communication target is stored. 0000 _H : No setting, or no communication log in the past Other than 0000 _H : Port number of a device, with which the latest communication was made
1322 to 1323 (52A _H to 52B _H)	Destination IP address	The IP address of the communication target is stored. 00000000 _H : No setting, or no communication log in the past Other than 00000000 _H : IP address of a device, with which the latest communication was made

A

(6) MELSOFT application communication port (TCP/IP) area for the system (buffer memory address: 1328 to 1339 (530_H to 53B_H))

Address	Name	Description
1328 (530 _H)	Open system	Data of the open system is stored. 0: TCP Unpassive (fixed)
1329 (531 _H)	Protocol	Data of the protocol is stored. 0: TCP (fixed)
1330 (532 _H)	Communication data code	A communication data code is stored. 0: Binary code (fixed)
1331 (533 _H)	Own Station Port No.	The port number of the own station is stored. 138A _H : Own station's port (fixed)
1332 (534 _H)	TCP connection system	A TCP connection system is stored. 0: Unpassive (fixed)
1333 (535 _H)	Connection status	The current status is stored. 0000 _H : Disconnected (Connection disrupted) 0001 _H : Communicating (Connection established)
1334 to 1335 (536 _H to 537 _H)	System area	—
1336 (538 _H)	Latest error code	The latest error code is stored. 0: No error Other than 0: Latest error code
1337 (539 _H)	Destination port No.	The port number of the communication target is stored. 0000 _H : No setting, or disconnected (Connection disrupted) Other than 0000 _H : Port number of a device, with which the latest communication was made
1338 to 1339 (53A _H to 53B _H)	Destination IP address	The IP address of the communication target is stored. 00000000 _H : No setting, or disconnected (Connection disrupted) Other than 00000000 _H : IP address of a device with which the module is communicating

(7) Direct MELSOFT connection port (buffer memory address: 1344 to 1355 (540_H to 54B_H))

Address	Name	Description
1344 (540 _H)	Open system	Data of the open system is stored. 3: UDP (fixed)
1345 (541 _H)	Protocol	Data of the protocol is stored. 1: UDP (fixed)
1346 (542 _H)	Communication data code	A communication data code is stored. 0: Binary code (fixed)
1347 (543 _H)	Own Station Port No.	The port number of the own station is stored. 1390 _H : Own station's port (fixed)
1348 (544 _H)	System area	—
1349 (545 _H)	Connection status	The current status is stored. 0000 _H : Error 0001 _H : Normal
1350 to 1351 (546 _H to 547 _H)	System area	—
1352 (548 _H)	Latest error code	The latest error code is stored. 0: No error Other than 0: Latest error code
1353 (549 _H)	Destination port No.	The port number of the communication target is stored. 0000 _H : No setting, or no communication log in the past Other than 0000 _H : Port number of a device, with which the latest communication was made
1354 to 1355 (54A _H to 54B _H)	Destination IP address	The IP address of the communication target is stored. 00000000 _H : No setting, or no communication log in the past Other than 00000000 _H : IP address of the device, with which the latest communication was made

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(8) Connection port for the configuration tool (buffer memory address: 1360 to 1371 (550_H to 55B_H))

Address	Name	Description
1360 (550 _H)	Open system	Data of the open system is stored. 3: UDP (fixed)
1361 (551 _H)	Protocol	Data of the protocol is stored. 1: UDP (fixed)
1362 (552 _H)	Communication data code	A communication data code is stored. 0: Binary code (fixed)
1363 (553 _H)	Own Station Port No.	The port number of the own station is stored. 1392 _H : Own station's port (fixed)
1364 (554 _H)	System area	—
1365 (555 _H)	Connection status	The current status is stored. 0000 _H : Error 0001 _H : Normal
1366 to 1367 (556 _H to 557 _H)	System area	—
1368 (558 _H)	Latest error code	The latest error code is stored. 0: No error Other than 0: Latest error code
1369 (559 _H)	Destination port No.	The port number of the communication target is stored. 0000 _H : No setting, or no communication log in the past Other than 0000 _H : Port number of a device, with which the latest communication was made
1370 to 1371 (55A _H to 55B _H)	Destination IP address	The IP address of the communication target is stored. 00000000 _H : No setting, or no communication log in the past Other than 00000000 _H : IP address of the device, with which the latest communication was made

Appendix 1.4 Ethernet port error log area

(1) Error count (buffer memory address: 2049 (801_H))

The number of errors occurred is stored.

0: No error

1 to 65535: Number of errors occurred

Even if errors occurred 65536 times or more, the count will stop at 65535.

(2) Error log write pointer (buffer memory address: 2050 (802_H))

Error log number of the latest error is stored.

0: No error (No error log)

1 to 64: Error log number of the latest error

If the 65th or more error occurs, it will return to error log No.1 and start registration again.

(3) Error log No.1 (buffer memory address: 2064 to 2079 (810_H to 81F_H))

Address	Name	Description
2064 (810 _H)	Error code	An error code is stored. 0: No error Other than 0: Error code
2065 (811 _H)	Connection No.	The number of the Connection where the error occurred is stored. 0: Error independent of connection 1 to 32: No. of the Connection where the error occurred 33: Auto-Open UDP Port 34: MELSOFT application communication port (UDP/IP) 35: MELSOFT application communication port (TCP/IP) 36: Direct MELSOFT Connection Port 37: Connection Port for the Configuration Tool 38: System Connection 39: System Connection
2066 (812 _H)	Open system	The open system of the Connection is stored. 0: TCP Unpassive 1: TCP Fullpassive 3: UDP
2067 (813 _H)	Protocol	The protocol of the Connection is stored. 0: TCP 1: UDP
2068 (814 _H)	Own Station Port No.	The own station's port number at the time of the error is stored. 0000 _H : No error (default), or an error lower than the TCP or UDP level 0401 _H to FFFE _H : Own Station Port No.
2069 (815 _H)	Destination port No.	The port number of the communication target is stored. 0000 _H : No error (default), or an error lower than the TCP or UDP level 0001 _H to FFFF _H : Port number of the communication target
2070 to 2071 (816 _H to 817 _H)	Destination IP address	The IP address of the communication target is stored. 00000000 _H : No error (default) or an error lower than the IP level 00000001 _H to DFFFFFFF _H : IP address of the communication target FFFFFFF _H : Broadcast data received

Address	Name	Description																									
2072 to 2075 (818 _H to 81B _H)	Date and time	<p>The date and time of the error is stored in the following BCD code.</p> <table border="1"> <tr> <td>b15</td> <td>~</td> <td>b8 b7</td> <td>~</td> <td>b0</td> </tr> <tr> <td>2072(818_H)</td> <td>Month (01_H to 12_H)</td> <td>Year (00_H to 99_H), last 2 digits</td> <td></td> <td></td> </tr> <tr> <td>2073(819_H)</td> <td>Hour (00_H to 23_H)</td> <td>Day (01_H to 31_H)</td> <td></td> <td></td> </tr> <tr> <td>2074(81A_H)</td> <td>Second (00_H to 59_H)</td> <td>Minute (00_H to 59_H)</td> <td></td> <td></td> </tr> <tr> <td>2075(81B_H)</td> <td>Year (00_H to 99_H), first 2 digits</td> <td>Day of week (00_H to 06_H)</td> <td></td> <td></td> </tr> </table> <p style="text-align: right;">00_H (Sun.) to 06_H (Sat.)</p>	b15	~	b8 b7	~	b0	2072(818 _H)	Month (01 _H to 12 _H)	Year (00 _H to 99 _H), last 2 digits			2073(819 _H)	Hour (00 _H to 23 _H)	Day (01 _H to 31 _H)			2074(81A _H)	Second (00 _H to 59 _H)	Minute (00 _H to 59 _H)			2075(81B _H)	Year (00 _H to 99 _H), first 2 digits	Day of week (00 _H to 06 _H)		
b15	~	b8 b7	~	b0																							
2072(818 _H)	Month (01 _H to 12 _H)	Year (00 _H to 99 _H), last 2 digits																									
2073(819 _H)	Hour (00 _H to 23 _H)	Day (01 _H to 31 _H)																									
2074(81A _H)	Second (00 _H to 59 _H)	Minute (00 _H to 59 _H)																									
2075(81B _H)	Year (00 _H to 99 _H), first 2 digits	Day of week (00 _H to 06 _H)																									
2076 (81C _H)	Command code	<p>A command code for the message of the error is stored.</p> <p>A value is stored only when the error occurred in SLMP communication.</p> <p>0: No error (default) or an error lower than the TCP or UDP level Other than 0: Command code</p>																									
2077 (81D _H)	Subcommand code	<p>A subcommand code for the message of the error is stored.</p> <p>A value is stored only when the error occurred in SLMP communication.</p> <p>0: No error (default) or an error lower than the TCP or UDP level Other than 0: Subcommand code</p>																									
2078 to 2079 (81E _H to 81F _H)	System area	—																									

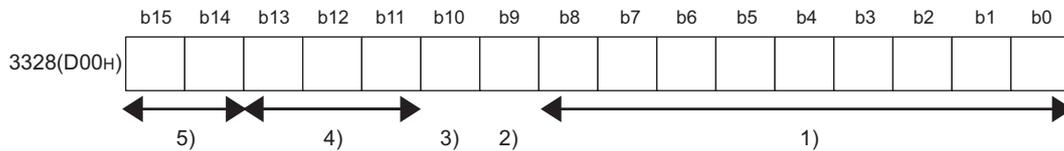
(4) Error log No.2 to No.64 (buffer memory address: 2080 to 3087 (820_H to C0F_H))

In the same sequence as error log No.1, information on error log No.2 to No.64 is stored.

Appendix 1.5 Ethernet port line status

(1) Communication status (buffer memory address: 3328 (D00_H))

The communication status data of the Ethernet port is stored in the following bit pattern.



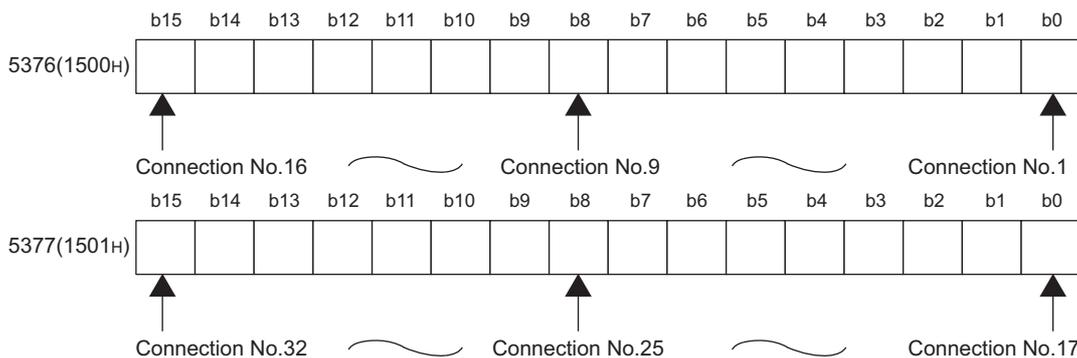
- | | |
|---|--|
| <p>1) Empty</p> <p>3) Connection status
0: Hub or external device not connected or disconnected
1: Hub or external device connected</p> <p>5) Data transmission speed
00: Empty
01: Operating at 100BASE-TX
10: Operating at 1000BASE-T
11: Empty</p> | <p>2) Communication mode
0: Half-duplex
1: Full-duplex</p> <p>4) Empty</p> |
|---|--|

Appendix 1.6 Ethernet port connection status data area

(1) Open completion signal (buffer memory address: 5376 to 5377 (1500_H to 1501_H))

The open status of each Connection is stored in the following bit pattern.

In the case of UDP protocol, when the Ethernet adapter module becomes ready for operation, Open completed (1) is set.



OFF: Open not completed, ON: Open completed

Appendix 1.7 On-demand function data sending area

For the buffer memories used for the on-demand function, refer to the following.

(☞ Page 89, Section 7.2)

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Appendix 2 Link Special Relay (SB) List

The link special relay (SB) is turned on or off depending on various factors generated during data link. The data link error status can be confirmed by using it in the program.

Point

Do not turn on or off any link special relay (SB) since the system uses all of the area. Doing so may result in malfunction of the system.

Number	Name	Description
SB0047	Baton pass status of the own station	The baton pass status of the own station (transient transmission can be performed) is stored. OFF: Normal ON: Abnormal When an error occurs, the cause can be identified in Baton pass status of the own station (SW0047) and Cause of baton pass interruption (SW0048).
SB004F	Operating station No. status	Information on which values are used for operation, the network No. and station No. values set in "CC-Link IE Field Network" of PLC Parameter or those set in the CC-Link IE Field Network diagnostics, is stored. OFF: Values set in "CC-Link IE Field Network" of PLC Parameter ON: Values set in the CC-Link IE Field Network diagnostics When no parameter is set for the Ethernet adapter module, this area is turned on.
SB006A	PORT1 linkup status (own station)	The linkup status of PORT1 (own station) is stored. OFF: Linkup ON: Linkdown The time between the power-on and linkup after the Ethernet cable is connected may vary. It usually takes a few seconds. Note, however, that the time may be extended further if the linkup process is repeated depending on the status of the device on the line.
SB006B	PORT2 linkup status (own station)	The linkup status of PORT2 (own station) is stored. OFF: Linkup ON: Linkdown The time between the power-on and linkup after the Ethernet cable is connected may vary. It usually takes a few seconds. Note, however, that the time may be extended further if the linkup process is repeated depending on the status of the device on the line.
SB007F	IP address setting status	The status of whether the IP address was sent or not from the master station is stored. OFF: Not received ON: Received

Appendix 3 Link Special Register (SW) List

In the link special registers (SW), data link information is stored as numerical values. By using them in programs, the location and cause of failure can be checked.

Point

Do not write data to any link special register (SW) since the system uses all of the area. Doing so may result in malfunction of the system.

Number	Name	Description
SW0040	Network No.	The network number of the own station is stored. Range: 1 to 239
SW0042	Station No.	The station number of the own station is stored. Range: 1 to 120 (slave station), FFFF _H (station number not set)
SW0043	Mode status	The mode of the own station is stored. 0: Online 2: Offline 9: Unit test
SW0047	Baton pass status (own station)	The communication status of the own station is stored. 0: Data link in progress 2: Data link stopped, baton pass in progress 3: Baton pass stopped 5: Offline
SW0048	Cause of baton pass interruption	The cause of communication (baton pass) interruption of the own station is stored. 00 _H : Normal communication or at power-on 30 _H : Cable disconnection 33 _H : Being disconnected from or reconnected to the network 40 _H : Offline mode
SW0049	Cause of data link stop	The cause of the data link stop (own station) is stored. 00 _H : Normal communication or at power-on 01 _H : Stop command 02 _H : Monitoring timeout 10 _H : Parameters not received 11 _H : Station No. (own station) out of range 12 _H : Own station specified as reserved station 13 _H : Station No. duplication (own station) 16 _H : No station No. setting 18 _H : Parameter error 19 _H : Parameter transfer in progress 1A _H : Station type mismatch 20 _H : Error detected
SW004B	Module status (own station)	The own station status is stored. 01 _H : STOP (normal) 02 _H : STOP (stop error) 03 _H : STOP (continuation error) 04 _H : RUN (normal) 05 _H : RUN (continuation error) 0F _H : Offline or initial processing

Number	Name	Description
SW0064	Connection status (own station)	<p>The connection status of the own station is stored.</p> <p>00_H: Normal</p> <p>01_H: Normal (communicating on PORT1, cable disconnected on PORT2)</p> <p>04_H: Normal (loopback communicating on PORT1, cable disconnected on PORT2)</p> <p>10_H: Normal (cable disconnected on PORT1, communicating on PORT2)</p> <p>11_H: Disconnected (cables disconnected on PORT1 and PORT2)</p> <p>12_H: Disconnected (cable disconnected on PORT1, PORT2 line being established)</p> <p>21_H: Disconnected (PORT1 line being established, cable disconnected on PORT2)</p> <p>22_H: Disconnected (PORT1 and PORT2 lines being established)</p> <p>40_H: Normal (cable disconnected on PORT1, loopback communicating on PORT2)</p>

Appendix 4 Special Relay (SM) List

The special relays (SM) are internal relays whose applications are predetermined in the Ethernet adapter module. However, they can be turned on or off as necessary for control of the Ethernet adapter module. The following table shows how to read the special relay list.

Item	Description
No.	Special relay (SM) number
Name	Special relay (SM) name
Description	Content of the special relay (SM)
Details	Detailed description of the special relay (SM)
Set by (Set timing)	Setting side and, in the case of system setting, the timing <Set by> <ul style="list-style-type: none"> • S: Set by the system • U: Set by the user (by a dedicated instruction, SLMP, etc.) • S/U: Set by both the system and user <Set timing> Only in the case of system setting, the timing is indicated. <ul style="list-style-type: none"> • Initial: Set during initial processing (after power-on or reset) • Status change: Set when the operating status is changed. • Error: Set when an error occurred. • Write: Set when data are written.



Do not change any system-set special relay by using a dedicated instruction or SLMP. Doing so may result in a system down or a communication failure.

(1) Diagnostic information

Number	Name	Description	Details	Set by (Set timing)
SM0	Diagnostic error	OFF: No error ON: Error	<ul style="list-style-type: none"> Turns on if an error is detected by the diagnostics. Stays on even if it returns to normal. 	S (Error)
SM1	Self-diagnostic error	OFF: No self-diagnostic error ON: Self-diagnostic error	<ul style="list-style-type: none"> Turns on if an error is detected by the self-diagnostics. Stays on even if it returns to normal. 	
SM5	Common error information	OFF: No common error information ON: Common error information	Turns on if there is any common error information when SM0 turns on.	
SM16	Individual error information	OFF: No individual error information ON: Individual error information	Turns on if there is any individual error information when SM0 turns on.	
SM50	Error clear	OFF→ON: Error clear	Clears an error.	U
SM53	DC DOWN detection	OFF: No DC DOWN ON: DC DOWN detected	Turns on if a momentary power failure of 10ms or less occurs. The status is reset when power is turned on from off.	S (Error)

(2) Drive information

Number	Name	Description	Details	Set by (Set timing)
SM681	Parameter memory writing flag	ON: Writing OFF: Not writing	Turns on while writing parameters to a flash ROM, and turns off when the writing is completed.	S (Write)
SM682	Parameter memory rewrite count error flag	ON: Rewrite count reached 100000 OFF: Rewrite count less than 100000	Turns on when the count of rewriting parameters to a flash ROM reaches 100000. (The Ethernet adapter module needs to be replaced.)	

Appendix 5 Special Register (SD) List

The special registers (SD) are internal registers whose applications are predetermined in the Ethernet adapter module. However, data can be written as necessary for control of the Ethernet adapter module. Data are stored in the special registers as binary values unless otherwise specified.

The following table shows how to read the special register list.

Item	Description
No.	Special register (SD) number
Name	Special register (SD) name
Description	Content of the special register (SD)
Details	Detailed description of the special register (SD)
Set by (Set timing)	Setting side and, in the case of system setting, the timing <Set by> <ul style="list-style-type: none"> • S: Set by the system • U: Set by the user (by a dedicated instruction, SLMP, etc.) • S/U: Set by both the system and user <Set timing> Only in the case of system setting, the timing is indicated. <ul style="list-style-type: none"> • Initial: Set during initial processing (after power-on or reset) • Status change: Set when the operating status is changed. • Error: Set when an error occurred. • Switch change: Set when the switch is changed. • Write: Set when data are written.

Point

Do not change any system-set special register by using a dedicated instruction or SLMP. Doing so may result in a system down or a communication failure.

A

(1) Diagnostic information

Number	Name	Description	Details	Set by (Set timing)						
SD0	Diagnostic error	Diagnostic error code	<ul style="list-style-type: none"> When an error is detected in the diagnostics, an error code is stored. The data is the same as the latest information in the error history and system error history. 							
SD1	Clock time of diagnostic error	Clock time of diagnostic error	<p>Data of the year (last two digits) and month (2-digit BCD code) when SD0 data were updated are stored.</p> <p style="text-align: right;">(Example) January, 2010</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">b15 to b8</td> <td style="text-align: center;">b7 to b0</td> <td></td> </tr> <tr> <td style="text-align: center;">Year (0 to 99)</td> <td style="text-align: center;">Month (1 to 12)</td> <td style="text-align: right;">1001H</td> </tr> </table> <p>The clock of the Ethernet adapter module synchronizes the clock of the master station. Page 30, Section 3.2</p>	b15 to b8	b7 to b0		Year (0 to 99)	Month (1 to 12)	1001H	S (Error)
b15 to b8			b7 to b0							
Year (0 to 99)			Month (1 to 12)	1001H						
SD2	<p>Data of the day and hour (2-digit BCD code) when SD0 data were updated are stored.</p> <p style="text-align: right;">(Example) 10 a.m. on 25th</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">b15 to b8</td> <td style="text-align: center;">b7 to b0</td> <td></td> </tr> <tr> <td style="text-align: center;">Day (1 to 31)</td> <td style="text-align: center;">Hour (0 to 23)</td> <td style="text-align: right;">2510H</td> </tr> </table> <p>The clock of the Ethernet adapter module synchronizes the clock of the master station. Page 30, Section 3.2</p>	b15 to b8	b7 to b0		Day (1 to 31)	Hour (0 to 23)	2510H			
b15 to b8	b7 to b0									
Day (1 to 31)	Hour (0 to 23)	2510H								
SD3	<p>Data of the minute and second (2-digit BCD code) when SD0 data were updated are stored.</p> <p style="text-align: right;">(Example) 35 min. 48 sec.</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">b15 to b8</td> <td style="text-align: center;">b7 to b0</td> <td></td> </tr> <tr> <td style="text-align: center;">Minutes (0 to 59)</td> <td style="text-align: center;">Seconds (0 to 59)</td> <td style="text-align: right;">3548H</td> </tr> </table> <p>The clock of the Ethernet adapter module synchronizes the clock of the master station. Page 30, Section 3.2</p>	b15 to b8	b7 to b0		Minutes (0 to 59)	Seconds (0 to 59)	3548H			
b15 to b8	b7 to b0									
Minutes (0 to 59)	Seconds (0 to 59)	3548H								
SD4	Error information category	Error information category code	<ul style="list-style-type: none"> Data are stored in the common information (SD5 to SD15) or individual information (SD16 to SD26) areas respectively. A category code that determines what type of error information is stored. <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">b15 to b8</td> <td style="text-align: center;">b7 to b0</td> <td></td> </tr> <tr> <td style="text-align: center;">Individual information category codes</td> <td style="text-align: center;">Common information category codes</td> <td></td> </tr> </table> <ul style="list-style-type: none"> Any of the following are stored in the common information category codes area. <ul style="list-style-type: none"> 0: None 1: Module No. (slot No.) 2: File name 3: Time (set value) Any of the following are stored in the individual information category codes area. <ul style="list-style-type: none"> 0: None 1: (Empty) 2: None 3: Time (measured value) 4: None 5: Parameter No. 6: None 7: None 8: None 9: Failure information 12: None 13: None 	b15 to b8	b7 to b0		Individual information category codes	Common information category codes		S (Error)
b15 to b8	b7 to b0									
Individual information category codes	Common information category codes									

Number	Name	Description	Details	Set by (Set timing)
SD5	Common error information	Common error information	<ul style="list-style-type: none"> Common information on the error code (SD0) is stored. Three kinds of information are stored as shown below. By "Common information category codes" in SD4, the type of the common error information can be recognized. (The "Common information category code" values stored in SD4 correspond to the following 1) to 3).) 1) Module No. (slot No.) Unused (fixed to 0) 2) File name	S (Error)
SD6				
SD7				
SD8				
SD9				
SD10				
SD11				
SD12				
SD13				
SD14				
SD15				

Number	Meaning
SD5	(Empty)
SD6	
SD7	File name
SD8	(ASCII code: 8 characters)
SD9	
SD10	Extension *1 2EH(.)
SD11	(ASCII code: 3 characters)
SD12	
SD13	(Empty)
SD14	
SD15	

Number	Meaning
SD5	Time : 1μs units (0 to 999μs)
SD6	Time : 1ms units (0 to 65535ms)
SD7	
SD8	
SD9	
SD10	
SD11	(Empty)
SD12	
SD13	
SD14	
SD15	

*1 For the extension name, refer to the table below.

*1: The extension name is listed below.

SD _n		SD _{n+1}		Extension name	File type
Upper 8 bits	Lower 8 bits	Upper 8 bits	Lower 8 bits		
51 _H	50 _H	41 _H		QPA	Parameter



Number	Name	Description	Details	Set by (Set timing)																																																							
SD16	Individual error information	Individual error information	<ul style="list-style-type: none"> Individual information on the error code (SD0) is stored. Four kinds of information are stored as shown below. By "Individual information category code" in SD4, the type of the individual error information can be recognized. (The "Individual information category code" values stored in SD4 correspond to the following 1), 3), 5), and 9).) <p>1) (Empty)</p> <p>3) Time (measured value)</p> <table border="1"> <thead> <tr> <th>Number</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>SD16</td> <td>Time : 1 μs units (0 to 999 μs)</td> </tr> <tr> <td>SD17</td> <td>Time : 1ms units (0 to 65535ms)</td> </tr> <tr> <td>SD18</td> <td rowspan="10">(Empty)</td> </tr> <tr> <td>SD19</td> </tr> <tr> <td>SD20</td> </tr> <tr> <td>SD21</td> </tr> <tr> <td>SD22</td> </tr> <tr> <td>SD23</td> </tr> <tr> <td>SD24</td> </tr> <tr> <td>SD25</td> </tr> <tr> <td>SD26</td> </tr> </tbody> </table> <p>5) Parameter No.</p> <table border="1"> <thead> <tr> <th>Number</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>SD16</td> <td>Parameter No. *2</td> </tr> <tr> <td>SD17</td> <td rowspan="10">(Empty)</td> </tr> <tr> <td>SD18</td> </tr> <tr> <td>SD19</td> </tr> <tr> <td>SD20</td> </tr> <tr> <td>SD21</td> </tr> <tr> <td>SD22</td> </tr> <tr> <td>SD23</td> </tr> <tr> <td>SD24</td> </tr> <tr> <td>SD25</td> </tr> <tr> <td>SD26</td> </tr> </tbody> </table> <p>*2 For details on parameter No., refer to the following.  Page 184, Section 10.3</p> <p>9) Failure information</p> <table border="1"> <thead> <tr> <th>Number</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>SD16</td> <td>Failure information 1</td> </tr> <tr> <td>SD17</td> <td>Failure information 2</td> </tr> <tr> <td>SD18</td> <td>Failure information 3</td> </tr> <tr> <td>SD19</td> <td>Failure information 4</td> </tr> <tr> <td>SD20</td> <td>Failure information 5</td> </tr> <tr> <td>SD21</td> <td>Failure information 6</td> </tr> <tr> <td>SD22</td> <td>Failure information 7</td> </tr> <tr> <td>SD23</td> <td>Failure information 8</td> </tr> <tr> <td>SD24</td> <td>Failure information 9</td> </tr> <tr> <td>SD25</td> <td>Failure information 10</td> </tr> <tr> <td>SD26</td> <td>Failure information 11</td> </tr> </tbody> </table>	Number	Meaning	SD16	Time : 1 μ s units (0 to 999 μ s)	SD17	Time : 1ms units (0 to 65535ms)	SD18	(Empty)	SD19	SD20	SD21	SD22	SD23	SD24	SD25	SD26	Number	Meaning	SD16	Parameter No. *2	SD17	(Empty)	SD18	SD19	SD20	SD21	SD22	SD23	SD24	SD25	SD26	Number	Meaning	SD16	Failure information 1	SD17	Failure information 2	SD18	Failure information 3	SD19	Failure information 4	SD20	Failure information 5	SD21	Failure information 6	SD22	Failure information 7	SD23	Failure information 8	SD24	Failure information 9	SD25	Failure information 10	SD26	Failure information 11	S (Error)
Number				Meaning																																																							
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SD50	Error clear	Error code to be cleared	The error code to be cleared is stored.	U																																																							
SD53	DC DOWN detection	DC DOWN detection count	<ul style="list-style-type: none"> Every time the input voltage of the Ethernet adapter module drops to 65% of the rated voltage (DC power), the stored value is incremented by one. The counter repeats cycles of 0 → 32767 → -32768 → 0. 	S (Error)																																																							

(2) System information

Number	Name	Description	Details	Set by (Set timing)
SD200	Switch status	Ethernet adapter module switch status	The switch status of the Ethernet adapter module is stored. 0: RUN 1: STOP/RESET	S (Switch change)
SD201	LED status	LED status	<ul style="list-style-type: none"> Status information on the Ethernet adapter module's LEDs is stored in the following bit pattern. 0 represents "off", 1 represents "on", and 2 represents "flashing". <p>1: ERR., 2: D LINK, 3: RD, 4: SD, 5: MODE, 6: RUN (In the offline mode, RD and SD are always off.)</p>	S (Status change)
SD203	Operating status	Operating status	<p>The operating status of the Ethernet adapter module is stored.</p> <p>1) Operating status 0: RUN, 2: STOP 2) Cause of STOP The latest cause of the change in the operation status is stored. 0: STOP switch 1: Master station STOP 2: Remote operation from GX Works2, etc. 4: Error</p>	S (Status change)
SD290	Device assignment 1	Number of points assigned to X	The number of X points is stored (fixed to 8192).	S (Initial)
SD291		Number of points assigned to Y	The number of Y points is stored (fixed to 8192).	
SD296		Number of points assigned to SB	The number of SB points is stored (fixed to 8192).	
SD303		Number of points assigned to W	The number of W points is stored (fixed to 8192).	
SD304		Number of points assigned to SW	The number of SW points is stored (fixed to 8192).	

(3) Drive information

Number	Name	Description	Details	Set by (Set timing)
SD681	Parameter memory write (transfer) status	Write (transfer) status indication (%)	The progress of writing (transfer) to the parameter memory (flash ROM) is stored as percentage (0 to 100%). Upon instruction of write (transfer), 0 is set.	S (Write)
SD682	Parameter memory write count index	Current write count index	A current index value for write count to the parameter memory (flash ROM) ^{*1} is stored as a 32-bit binary value. If the index value exceeds 100000, "FLASH ROM ERROR" (error code: A62H) will be detected. (The index value will be continued to be counted even after it exceeds 100000.)	
SD683			^{*1} The write count is not equal to the index value. (Since the system has increased the write life of the parameter memory, the value increments by 1 for every two write operations.)	



Appendix 5 Special Register (SD) List

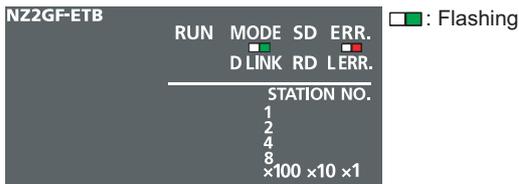
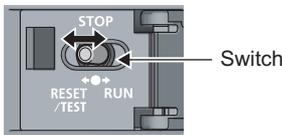
Appendix 6 Resetting Parameters to Factory Default Values

This section explains how to reset the parameters of the Ethernet adapter module to factory default values. Perform the following when an IP address set in the configuration tool is unknown.

Point 

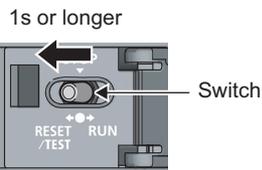
Parameters other than IP addresses will be also reset to factory default values.

Repeat at intervals of less than 1s.



1. Power on the module.
2. Move the switch on the Ethernet adapter module from **STOP** → **RESET/TEST** → **STOP** in less than 1 second, and repeat this cycle ten times. (Then the **MODE** and **ERR.** LEDs start flashing.)

When canceling the reset operation, shift the switch to RUN.



3. Move the switch to **RESET/TEST** and hold it for 1 second.

Appendix 7 Access Codes and an Attribute Code

The following shows the access codes and an attribute code that are set for accessing the Ethernet adapter module with the RIRD or RIWT instruction from the master/local module.

Device ^{*1}	Name	Device type		Unit	Access code	Attribute code
		Bit	Word			
X	Input	○	—	Hexadecimal	01 _H	05 _H
Y	Output	○	—	Hexadecimal	02 _H	
W	Link register	—	○	Hexadecimal	24 _H	
SB	Link special relay	○	—	Hexadecimal	63 _H	
SW	Link special register	—	○	Hexadecimal	64 _H	
SM	Special relay	○	—	Decimal	43 _H	
SD	Special register	—	○	Decimal	44 _H	

*1 Devices other than the above are not accessible.
To access a bit device, specify 0 or a multiple of 16.

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Appendix 8 EMC and Low Voltage Directives

Compliance to the EMC Directive, which is one of the EU Directives, has been a legal obligation for the products sold in European countries since 1996 as well as the Low Voltage Directive since 1997.

Manufacturers who recognize their products are compliant to the EMC and Low Voltage Directives are required to attach a "CE mark" on their products.

(1) Sales representative in EU member states

Sales representative in EU member states is shown below.

Name: Mitsubishi Electric Europe BV

Address: Gothaer Strasse 8, 40880 Ratingen, Germany

Appendix 8.1 Measures to comply with the EMC Directive

The EMC Directive specifies that "products placed on the market must be so constructed that they do not cause excessive electromagnetic interference (emissions) and are not unduly affected by electromagnetic interference (immunity)". This section summarizes the precautions on compliance with the EMC Directive of the machinery constructed with the Ethernet adapter module.

These precautions are based on the requirements and the standards of the regulation, however, it does not guarantee that the entire machinery constructed according to the descriptions will comply with the above-mentioned directives. Machine manufacturers are required to determine the method and judgment for complying with the EMC Directive at their discretion.

(1) EMC Directive related standards

(a) Emission requirements

Specification	Test item	Test details	Standard value
EN61131-2: 2007	CISPR16-2-3 Radiated emission ^{*2}	Radio waves from the product are measured.	<ul style="list-style-type: none"> • 30M-230MHz QP: 40dBμV/m (10m in measurement range)^{*1} • 230M-1000MHz QP: 47dBμV/m (10m in measurement range)
	CISPR16-2-1, CISPR16-1-2 Conducted emission ^{*2}	Noise from the product to the power line is measured.	<ul style="list-style-type: none"> • 150k-500kHz QP: 79dB, Mean: 66dB^{*1} • 500k-30MHz QP: 73dB, Mean: 60dB

*1 QP: Quasi-peak value, Mean: Average value

*2 The Ethernet adapter module is an open-type device (a device designed to be housed inside other equipment) and must be installed inside a conductive control panel. The corresponding tests were conducted with the Ethernet adapter module installed inside a control panel.

(b) Immunity requirements

Specification	Test item	Test details	Standard value
EN61131-2: 2007	EN61000-4-2 Electrostatic discharge immunity ^{*1}	Immunity test in which electrostatic is applied to the cabinet of the equipment.	8kV Air discharge 4kV Contact discharge
	EN61000-4-3 Radiated, radio-frequency, electromagnetic field immunity ^{*1}	Immunity test in which electric fields are irradiated to the product.	80% AM modulation @1kHz 80M-1000MHz: 10V/m 1.4G-2.0GHz: 3V/m 2.0G-2.7GHz: 1V/m
	EN61000-4-4 Electrical fast transient/burst immunity ^{*1}	Immunity test in which burst noise is applied to the power line and signal line.	AC/DC main power, I/O power, AC I/O (unshielded): 2kV DC I/O, analog, communication : 1kV
	EN61000-4-5 Surge immunity ^{*1}	Immunity test in which lightning surge is applied to the power line and signal line.	AC power line, AC I/O power, AC I/O (unshielded) : 2kV CM, 1kV DM DC power line, DC I/O power : 0.5kV CM, DM DC I/O, AC I/O (shielded), analog ^{*2} , communication: 1kV CM
	EN61000-4-6 Immunity to conducted disturbances, induced by radio-frequency fields ^{*1}	Immunity test in which high frequency noise is applied to the power line and signal line	0.15M-80MHz, 80% AM modulation @1kHz, 10Vrms
	EN61000-4-8 Power-frequency magnetic field immunity ^{*1}	Immunity test in which the product is installed in inductive magnetic field	50Hz/60Hz, 30A/m
	EN61000-4-11 Voltage dips and interruption immunity ^{*1}	Immunity test in which power supply voltage is momentarily interrupted	Apply at 0%, 0.5 cycles and zero-cross point 0%, 250/300 cycles (50/60Hz) 40%, 10/12 cycles (50/60Hz) 70%, 25/30 cycles (50/60Hz)

*1 The Ethernet adapter module is an open-type device (a device designed to be housed inside other equipment) and must be installed inside a conductive control panel. The corresponding tests were conducted with the Ethernet adapter module installed inside a control panel.

*2 The accuracy of an analog-digital converter module may temporary vary within $\pm 10\%$.

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Appendix 8 EMC and Low Voltage Directives
Appendix 8.1 Measures to comply with the EMC Directive

(2) Installation in a control panel

Ethernet adapter modules are open type devices and must be installed inside a control panel.

This ensures safety as well as effective shielding of electromagnetic noise that is generated from the Ethernet adapter module.

(a) Control panel

- Use a conductive control panel.
- When securing the top or bottom plate using bolts, cover the grounding part on the control panel so that the part will not be painted.
- To ensure electrical contact between the inner plate and control panel, take measures such as covering the bolts so that conductivity can be ensured in the largest possible area.
- Ground the control panel with a thick ground cable so that low impedance can be ensured even at high frequencies.
- Holes in the control panel must be 10cm diameter or less. If the holes are larger than 10cm, radio wave may be emitted. In addition, because radio waves leak through a clearance between the control panel and its door, reduce the clearance as much as possible. The leakage of radio waves can be suppressed by the direct application of an EMI gasket on the paint surface.

Our tests have been carried out on a panel having the attenuation characteristics of 37 dB (max.) and 30 dB (mean) (measured by 3m method, 30 to 300MHz).

(b) Wiring power and ground cables

- Provide a ground point near the power supply module. Ground the LG and FG terminals of the power supply part with the thickest and shortest ground cable (30cm or shorter) possible.

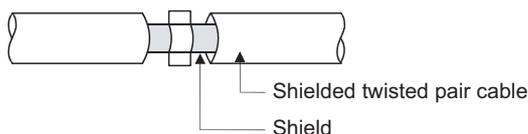
(3) Cables

Use shielded cables for the cables which are connected to the Ethernet adapter module and run out from the control panel.

If a shielded cable is not used or not grounded correctly, the noise immunity will not meet the specified value.

(a) Grounding a twisted pair cable

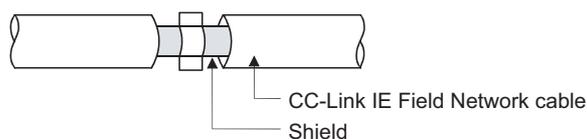
- Always use shielded twisted pair cables for connection to 10BASE-T and 100BASE-TX connectors. For the shielded twisted pair cable, strip a part of the jacket as shown below and ground the exposed shield section to the ground as much as possible.



(b) CC-Link IE Field Network cables

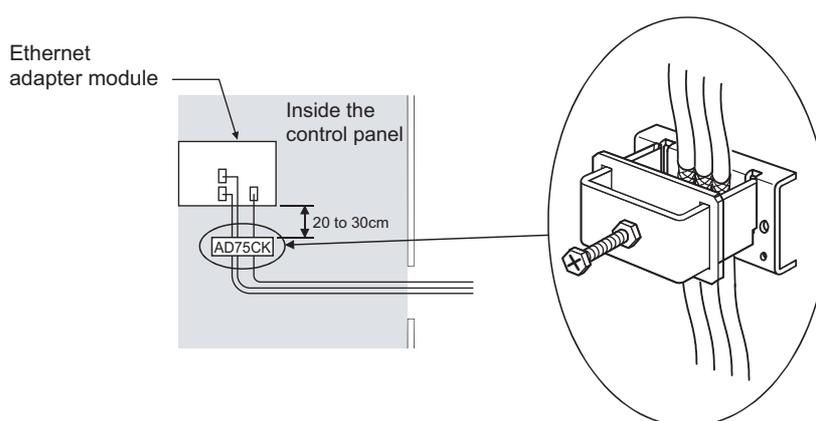
The precautions for using CC-Link IE Field Network cables are described below.

- Be sure to use the cables for CC-Link IE Field Network (manufactured by Mitsubishi Electric System & Service Co., Ltd.: SCE5EW-S□M).
- Shielded cables should be used for CC-Link IE Field Network. Strip a part of the jacket as shown below and ground the exposed shield in the largest possible area.



(c) Grounding cables with a cable clamp

Use shielded cables for external wiring and ground the shields of the external wiring cables to the control panel with the AD75CK-type cable clamping (Mitsubishi). (Ground the shield section 20 to 30cm away from the Ethernet adapter module.)



For details of the AD75CK, refer to the following.

 AD75CK-type Cable Clamping Instruction Manual

(4) External power supply

Use a CE-marked product for an external power supply and always ground the FG terminal.

(External power supply used for the tests conducted by Mitsubishi: TDK-Lambda DLP-120-24-1, IDEC PS5R-SF24)

(5) Power supply part

Always ground the LG and FG terminals after shunting them.

(6) Other measures

(a) Ferrite core

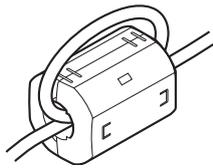
A ferrite core has the effect of reducing radiated noise in the 30MHz to 100MHz band.

It is recommended to attach ferrite cores if shield cables coming out from pulled out of the control panel do not provide sufficient shielding effects.

Note that the ferrite cores must be attached at the position closest to the cable hole inside the control panel. If attached at an improper position, the ferrite core will not produce any effect.

Attach a ferrite core to each power line as illustrated below.

Example



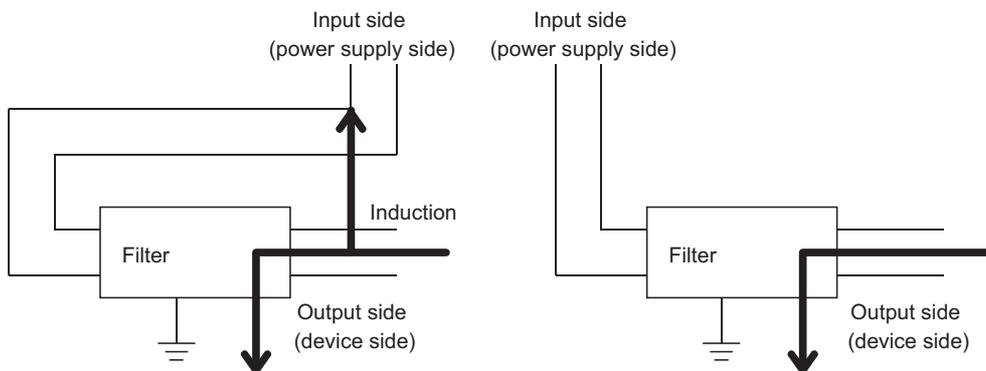
(b) Noise filter (power supply line filter)

A noise filter is a component which has an effect on conducted noise.

Attaching the filter can suppress more noise. (The noise filter has the effect of reducing conducted noise of 10 MHz or less.)

The precautions for attaching a noise filter are described below.

- Do not bundle the cables on the input side and output side of the noise filter. If bundled, the output side noise will be induced into the input side cables from which the noise was filtered.



Noise will be induced when the input and output wires are bundled.

Separately install the input and output wires.

- Ground the noise filter grounding terminal to the control panel with the shortest cable possible (approx. 10cm).

Appendix 8.2 Measures to comply with the Low Voltage Directive

The Ethernet adapter module operates at the rated voltage of 24VDC.

The Low Voltage Directive is not applied to the modules that operate at the rated voltage of less than 50VAC and 75VDC.

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Appendix 9 Processing Time

This section describes processing time from the start of SLMP communication to the end of it. The processing time values given below are the values calculated under the assumption that the Read (command: 0401) and Write (command: 1401) are used.

Point

The calculation formulas are provided for the case where the Ethernet adapter module communicates with an external device through a connection. The processing time may increase due to any of the following factors.

- Network load (line congestion)
- Window size of the external device connected to the Ethernet adapter module
- Number of connections concurrently used, and the system configuration

Appendix 9.1 Transmission from the external device to the Ethernet adapter module

(1) Calculation formula

$T_{sf} = K_e + (K_{dt} \times D_f) + \text{ACK processing time of external device [ms]}$

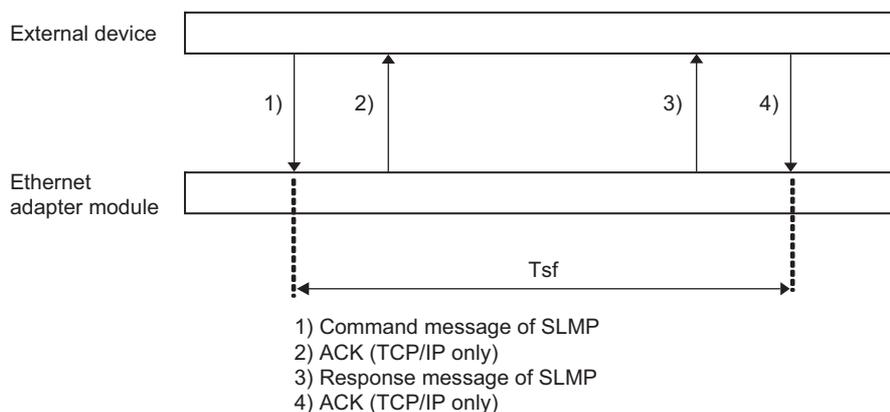
- T_{sf} : The elapsed time between when the Ethernet adapter module receives request data from the external device and when until the requested processing is completed
- K_e, K_{dt} : Constant
- D_f : Number of words in request message (excluding the header) + Number of words in response message (excluding the header)

- Constant (K_e, K_{dt})

Item		Command	Subcommand	Communication data code	TCP		UDP	
Type	Operation				K_e	K_{dt}	K_e	K_{dt}
Device	Read	0401	00 □ 1, 00 □ 0	Binary code	6	0.0028	6	0.0028
				ASCII code	6	0.0045	6	0.0040
	Write	1401	00 □ 1, 00 □ 0	Binary code	6	0.0030	6	0.0030
				ASCII code	6	0.0051	6	0.0044

(2) Processing timing

Processing timing of the Ethernet adapter module is shown below.



Appendix 9.2 Transmission from the external device to a CPU module through the Ethernet adapter module

(1) Calculation formula

$T_{sf} = K_e + (K_{dt} \times D_f) + 2 \times LS + S_{cr} \times \text{Number of CPU module's sequence scans required for processing of the message} + \text{ACK processing time of external device [ms]}$

- T_{sf} : The elapsed time between when the Ethernet adapter module receives request data from the external device and when until the requested processing is completed
- K_e, K_{dt} : Constant
- D_f : Number of words in request message (excluding the header) + Number of words in response message (excluding the header)
- LS^{*1} : Link scan time of CC-Link IE Field Network
- S_{cr}^{*2} : Sequence scan time of CPU module

*1 For processing time on CC-Link IE Field Network, refer to the following.

 User's manual of the master/local module used

*2 For sequence scan time of the CPU module, refer to the following.

 User's manual of the CPU module used (Function Explanation, Program Fundamentals)

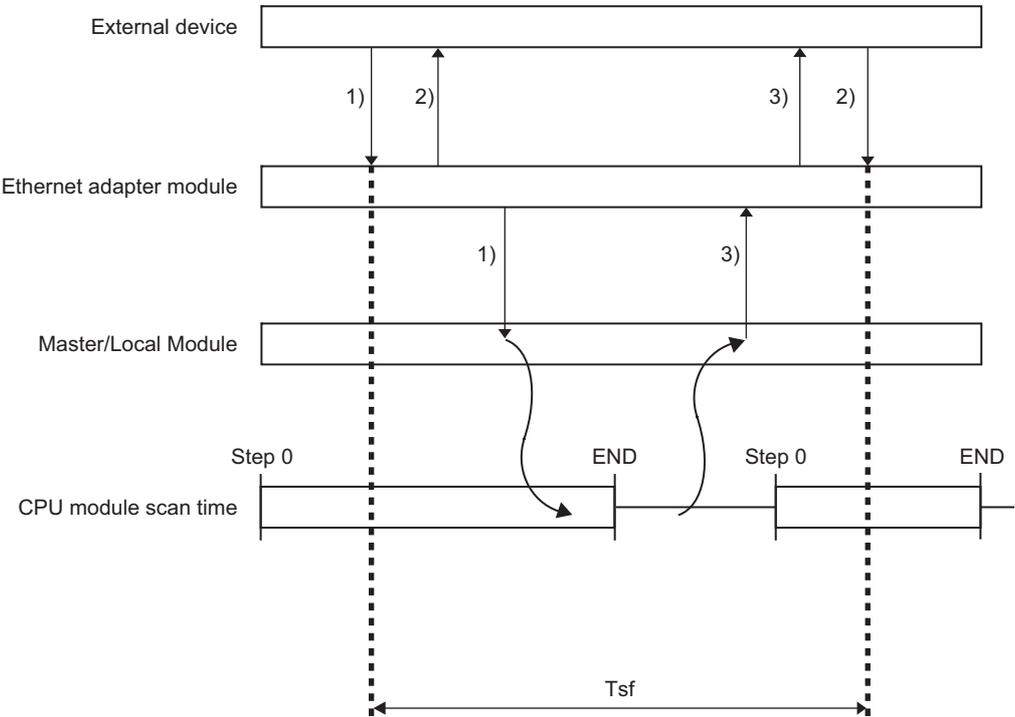
• Constant (K_e, K_{dt})

Item		Command	Subcommand	Communication data code	TCP		UDP	
Type	Operation				K_e	K_{dt}	K_e	K_{dt}
Device	Read	0401	00 □ 1, 00 □ 0	Binary code	6	0.0028	6	0.0028
				ASCII code	6	0.0045	6	0.0040
	Write	1401	00 □ 1, 00 □ 0	Binary code	6	0.0030	6	0.0030
				ASCII code	6	0.0051	6	0.0044

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(2) Processing timing

Processing timing of the Ethernet adapter module is shown below.



- 1) Command message of SLMP
- 2) ACK (TCP/IP only)
- 3) Response message of SLMP

Appendix 10 New Function and Improved Function

The following table lists the new and improved functions.

New function and improved function	Module supporting the function (first five digits of the serial number)	Configuration tool supporting the function
Support the English version of the configuration tool ^{*1}	"12102" or later	Version 1.02C or later
L ERR. LED or L ER LED is on while the Ethernet adapter module is performing loopback. (Page 24, Section 2.2)	"12102" or later	—
On-demand function (Page 89, Section 7.2)	"13012" or later	—
The configuration tool is compatible with Windows ^{®7}		
Configuration tool functions added (Page 175, CHAPTER 10) <ul style="list-style-type: none"> • Device/buffer memory batch monitor • Module information display • Error details display • Turning off the COM.ERR.LED on the configuration tool 	"13092" or later	Version 1.04E or later
Support of the access that specifies the master and submaster stations (When 7D _H (specified control station/master station) is selected for the station number of the request message of SLMP, the master station can be always accessed. ^{*3})	"14022" or later	—
Support of broadcast communications of the on-demand function (Page 95, Section 7.2.5 (5) (e))	"14022" or later	—
Support of IP communications over CC-Link IE Field Network (IP packet transfer function) (Page 105, Section 7.3)	"14022" or later	Version 1.05F or later
Configuration tool functions added (Page 175, CHAPTER 10) <ul style="list-style-type: none"> • IP communication test • Monitoring of the SD LED and RD LED 	"14022" or later	Version 1.05F or later

*1 The English version of the configuration tool starts up under the operating systems of English version.

*2 External devices with a serial number (first five digits) of "14021" or earlier access a station operating as a master station (master operating station). When the submaster station starts to take in control instead of the master station, the access destination also changes to the submaster station. (Each time stations in control change, the access destination also changes.)

Changing the station number to 7E_H (current control station/master station) allows external devices with a serial number (first five digits) of "14022" or later to access a station operating as a master station (master operating station).

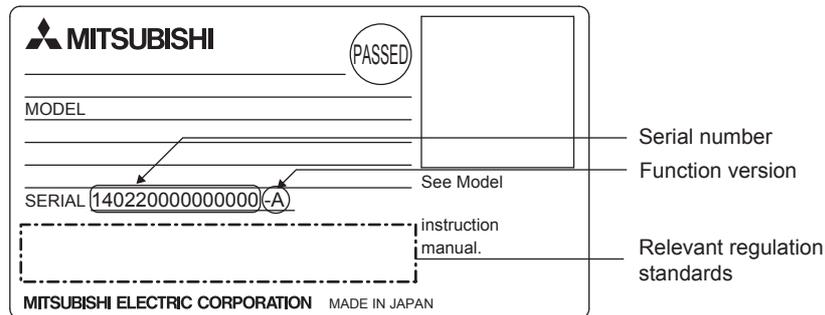
Appendix 11 Checking the Serial Number and Function Version

The serial number and function version of the Ethernet adapter module can be checked on any of the following.

- Rating plate
- Front of the module
- Configuration tool

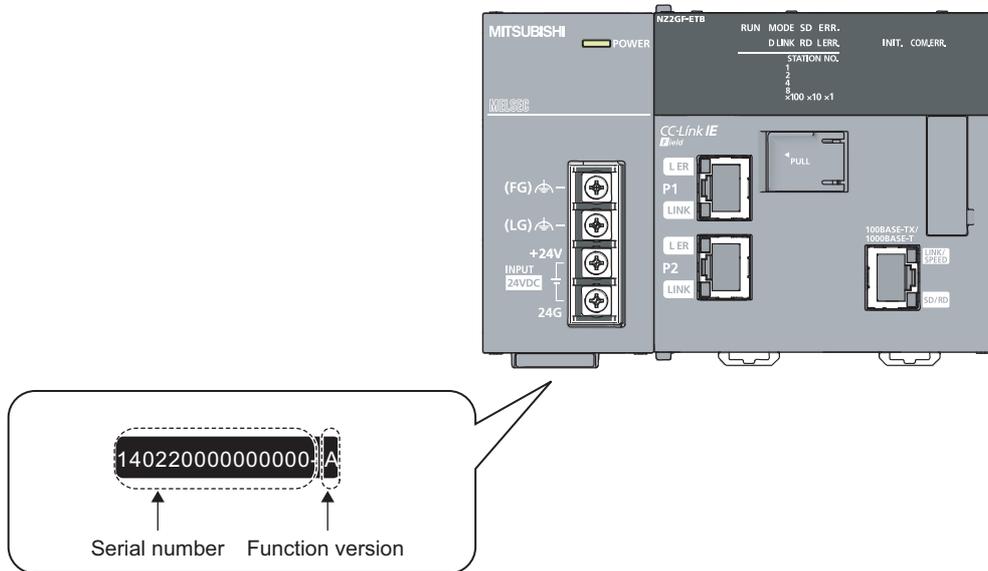
(1) Checking on the rating plate

The rating plate is located on the side face of the Ethernet adapter module.



(2) Checking on the front of the module

The serial number on the rating plate is also printed on the front (at the bottom) of the module.



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(3) Checking using the configuration tool

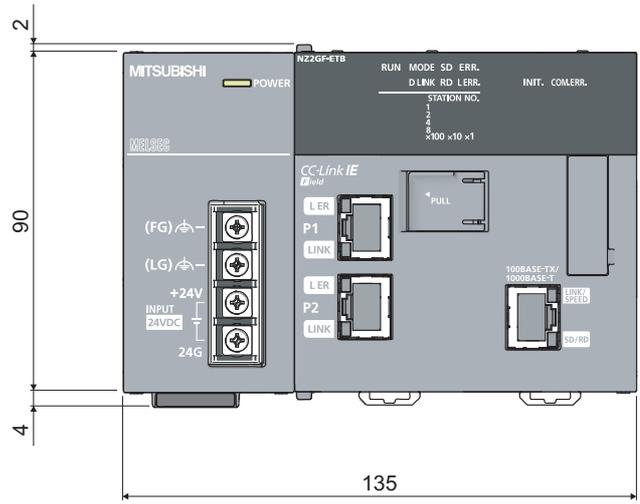
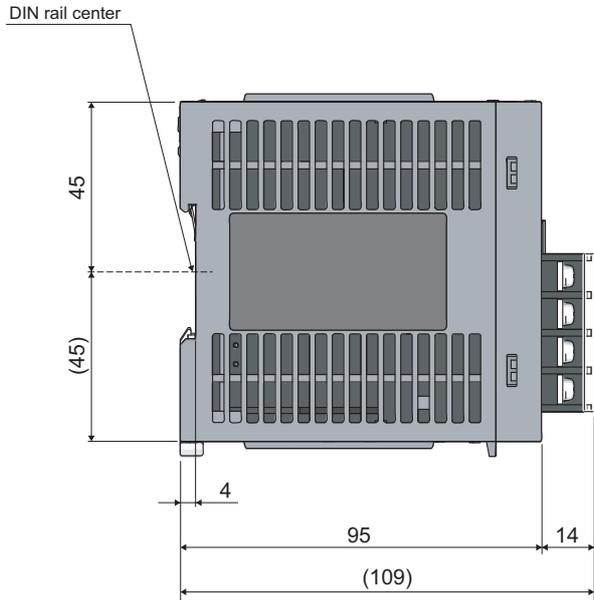
The serial number and function version can be checked on the "Ethernet Adapter Diagnostics" window in the configuration tool.*1



*1 Check the corresponding serial No. and software version. (👉 Page 233, Appendix 10)

Appendix 11 Checking the Serial Number and Function Version

Appendix 12 External Dimensions



(Unit: mm)

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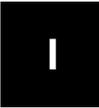
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MODEL CODE: 13JZ50

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